VOLUNTARY PARTICIPATION IN FORMAL GROUPS

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ABSTRACT

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By

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How it is that various structural conditions produce differing rates of rank-and-file participation in voluntary organizations is the dominant theoretical concern of this research. In its execution, three tasks were undertaken. The first was an explication and reconstruction of selected segments of the reasoning underlying two classic studies of formal authority systems: Robert Michels' Political Parties and Lipset, Trow and Coleman's Union Democracy. This formed the substantive foundation of the rest of the dissertation.

The second task was to formalize these ideas. The problem was conceptualized as a choice situation in which a rank-and-file member decides whether or not to participate in an organizational decision-making opportunity depending upon expected outcomes associated with each of those alternatives and the utilities he attaches to them. The formalization has two aspects: a) my specification of the utility structures in a manner suggested by the previous theoretical analysis, and b) the application of the Camilleri-Berger formal model of decision-making to specify how these utilities influence which alternative is likely to be chosen.

The third task was to interpret the formal model for certain structural situations central to Lipset and Michels' arguments and to construct experimental analogues to those situations in order to determine how well the model predicts the empirical participation rates.

A four-way comparison was generated by varying one structural condition discussed by Michels and Lipset (i.e., the disagreement pattern of the group) and one parameter of the model arising from the formalization process directly (i.e., the subject's expectations about the activity rates of other non-leaders). All four experimental conditions involved three-person groups (one leader and two rank-and-file) which had flat authority systems. Observed and theoretical participation rates were evaluated for goodness of fit.

The results were supportive of the model in that rank order predictions were accurate, and specific numerical predictions for participation rates in three of the four experimental conditions were also judged to be correct. The observed participation rate for the fourth condition was properly rank-ordered but was higher than the predicted value. Expirical examination of the fine structure of the model was ambiguous.

VOLUNTARY PARTICIPATION IN FORMAL GROUPS

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PREFACE

This dissertation developed out of my interest in the relative stability of various forms of authority distributions in formal organizations--a problem which I initially investigated in the exploratory field study reported in my Master's Thesis. (That research and my study since then have increased my interest in this area.) I begin here with the same general problem but quickly narrow to a focus upon rank-and-file participation rates, since the literature I have dealt with suggests that rank-and-file activity is an important intra-organizational consideration in determining the stability of power distributions. How it is that various structural conditions produce differing rates of voluntary rank-and-file participation in organizational decision-making is the dominant concern throughout this paper.

The theoretical development of the problem rests almost exclusively upon material in Michels' Political Parties and in Lipset, Trow and Coleman's Union Democracy. Chapter 1 presents my reconstruction of selected segments of their respective arguments. Each study is dealt with separately and, in the final sections of that chapter, I identify the basic theoretical assertions which are shared by both as well as a central issue which distinguishes between them.

The second chapter contains a formal specification of the reasoning explicated in Chapter 1. It begins with an abstract specification of utility structures for an individual who is deciding whether or not to participate in some organizational decision-making situation. The Camilleri-Berger formal model of decision-making is then applied to these utility structures. At the end of the chapter, I return to a consideration of Michels and Lipset's arguments in specifying the model for several structural situations.

In the third chapter, the model is interpreted for three-person groups representing various combinations of the following variables: flat or centralized authority structures, three kinds of agreement patterns (consensus, vertical disagreement which Michels discusses, and horizontal disagreement which was Lipset's concern), and leader influenceability. The implications of the various situations are then discussed in terms of Michels and Lipset's assertions about stability and in terms of their general utility for empirical investigation of the model. The rationale for the particular situations to be experimentally investigated concludes the chapter.

The fourth chapter details the experimental procedure and contains the results of the pretest study. Presentation of the data results for the final study and discussion of their implications for the model can be found in the fifth chapter. It begins with a general evaluation of the degree of fit between the observed participation rates and the theoretical predictions. In the final section of that chapter, I discuss those aspects of the data which bear on the fine structure of the model. In addition to summary and conclusions, the last chapter contains a brief review of intended future investigation of the model.

Throughout the presentation, I have attempted to clearly acknowledge my intellectual indebtedness to those whose ideas are being used. My reliance upon Michels and Lipset, Trow and Coleman is intentionally heavy. While it is perhaps not so obvious, I have also used a great many of the ideas which Gamson discusses in Power and Discontent. The formal model itself rests almost exclusively upon the work done by Camilleri and Berger. I want to thank Drs. Faunce, Form and McKee whose continued help and guidance has been invaluable ever since my early struggles with these ideas in developing my Masters thesis problem. Most especially, I want to acknowledge the great debt I owe Drs. Camilleri and Connor for their indispensable assistance--pragmatic as well as intellectual--throughout the entire dissertation process.

My thanks are also extended to the National Science Foundation and to Dr. James Phillips of the Human Learning Research Center at Michigan State University whose aid made the empirical investigation possible.

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NOTATION KEY FOR FIGURES AND TABLES

L ----- Leader
P ----- Actor (non-leader)
O ----- Other non-leader

P,O,L ( ) ----- P,O,L <u>prefers</u> the alternative bracketed

P,O { } ----- P or O votes, but the vote is not the act of an authority; it is attempt to influence an authority.

P,O,L [ ] ----- P,O or L votes, and the vote is the act of an authority.

~ { } and ~ [ ] --- <u>not</u> vote.

A ----- "Acts," participates, makes an influence attempt.

$\bar{A}$ ----- Not A

G ----- Gain

<u>Preference Parameters</u>:

p_1 --- P's expectation of the likelihood that O prefers Y_1 .

p_2 --- P's expectation of the likelihood that L prefers Y_1 .

<u>Activity Parameters</u>:

a --- P's expectation of the likelihood that O will vote.

<u>Influence Parameters</u>:

c_1 --- P's expectation of the probability that L will <u>change</u> <u>his</u> <u>preference</u> if he is disagreed with by both P and O.

c_2 --- P's expectation of the probability that L will <u>change</u> <u>his</u> <u>preference</u> if disagreed with by <u>one</u> other member.

c_3 --- P's expectation of the probability that L will <u>change</u> <u>his</u> <u>preference</u> if he is agreed with by one member and disagreed with by another.

c --- With no subscript, c indicates P's expectation that L will <u>change</u> <u>his</u> <u>preference</u>; the conditions for that change are unspecified.

NOTATION KEY (cont'd.)

Influence Parameters (cont'd.):

k_1 --- P's expectation of the likelihood that L will conform to the preference of P and O when disagreed with by both.

k_2 --- P's expectation of the likelihood that L will conform to the preference of one disagreeing member.

CHAPTER I

THEORETICAL DEVELOPMENT OF THE PROBLEM

Introduction

In any stable group characterized by division of labor, there are processes by which decisions get made and individual behavior is regulated. The elaboration of the group's authority structure is a description of those processes. Formal organizations are groups which have an explicitly defined vertical division of labor. The study of the way in which decision-making and social-control rights are distributed in formal groups has always been a major sociological concern.

Among the most eminent treatments of this problem is Robert Michels' Political Parties, in which he elaborated the famous Iron Law of Oligarchy. Michels argued that power to make decisions and to sanction behavior inevitably becomes concentrated in the hands of those few who occupy top positions in the hierarchy. Michels concluded that centralized power is an inevitable characteristic of all organizations, even those which have explicitly intended democratic goals and procedures at their inception. The fact that he chose to argue his point for voluntary organizations whose very purpose was to ensure decentralized power indicates how inevitable he felt the phenomenon was.

However, there appears to be a notable empirical exception to Michels' law--the International Typographical Union. Lipset, Trow, and Coleman's case study of that union, Union Democracy, presents convincing evidence that the ITU has maintained a remarkably flat distribution of control throughout its history, in spite of the fact that it has a bureaucratic division of labor. This study is particularly relevant since it describes an organization which fits well into the context within which Michels chose to argue his point: it is a voluntary organization engaged in external conflict. If one accepts the validity of the bulk of descriptive evidence in _Union Democracy_, it seems that there is a conflict between what Michels asserted _must_ occur and what Lipset found to be empirically the case. We will be concerned throughout this paper with these two apparently disparate studies in an attempt to clarify how they contribute to an understanding of certain processes in formal authority systems.

The Iron Law

Michels' Iron Law says that a centralized power distribution is inevitable; all other authority structures are temporary and will eventually become centralized. The mechanism he described as accounting for this inevitability is essentially a social-psychological one dealing with differential rewards and motivations between leaders and non-leaders. His argument rests on the proposition that _leaders can and will use their power to get more power_. Leaders do not simply become more powerful absolutely, but they come to have increasing power relative to their membership. The change postulated is an internal and distributive one, not merely accumulative. Michels contended that this change was accounted for by the inevitable development of certain conditions in any group which has designated leaders. Reconstructed in my language, these conditions are:

1. Leaders are rewarded differentially from non-leaders so that high-office incumbents develop

a vested interest in maintaining their positions.[1]

The rewards of high office are desirable, and in any competition between leaders and non-leaders over these rewards, the leaders want to and can put themselves in an advantaged position. The implication is that at least some others in the organization also desire these rewards and in some way threaten the incumbent's security. If the incumbent can reduce threat by techniques of insulation or by making it more difficult for others in the group to put checks on his activities, tenure or rewards, he can be expected to do so.

2. Non-leaders operate on the principle of least action.[2]

Even apart from the desire for differential rewards of office, leaders will gain increased power almost by default, because non-leaders will not exercise discretion rights. Michels asserted this as a general empirical fact; the only rationale he offered was that the reward structure of an organization is only sufficient to motivate activities aimed at seeking or maintaining positions of leadership.

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[1]See the following sections of Robert Michels, Political Parties. Glencoe, Illinois: Free Press, 1915: Part Two (Autocratic Tendencies of Leaders), Chapter II (pp. 107-135) and Chapter IV (pp. 149-151), Part Three (The Exercise of Power and Its Psychological Reaction Upon the Leaders), Chapter I (pp. 205-214), and Part Four (Social Analysis of Leadership), Chapter IV (p. 289).

[2]*Ibid*. See Part One, B (Psychological Causes of Leadership), Chapter V (p. 49-59) and Part Four (Social Analysis of Leadership), Chapter I (p. 235).

3. Leaders are more task competent than are non-leaders.[3]

According to Michels, differential task competence is an inevitable result of division of labor and becomes more pronounced as recruitment of leaders stresses high task competence as a major criterion. Task competence is valued and deferred to because it is viewed as leading to greater organizational efficiency.

4. Members value high efficiency in attaining organizational goals, and centralized power distributions are considered more efficient than non-centralized ones.[4]

The implication is that achieving organizational goals means providing the rewards to members which account for their interest in belonging to the organization in the first place. The more efficiently these are secured, the happier the members are. Highly task-competent leaders who are unhindered by cumbersome decision-making procedures can operate efficiently. (Michels argued that there was pressure toward centralization of power for reasons of efficiency, but he did not contend that centralized authority systems were always, in fact, efficient.)

The Union Democracy Argument

In apparent contradiction to Michels' argument, *Union Democracy* presents us with the fact that it is *possible*, if not common, for a flat

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[3] *Ibid*. See Part One, A (Technical and Administrative Causes of Leadership), Chapter II (pp. 23-40), Part One, B (Psychological Causes of Leadership), Chapter VIII (pp. 69-77), and Part One, C (Intellectual Factors), Chapter X (pp. 80-90).

[4] *Ibid*. See Part One, A (Technical and Administrative Causes of Leadership), Chapter II (pp. 23-40) and Part One, C (Intellectual Factors), Cahpter X (pp. 80-90), Part Two (Autocratic Tendencies of Leaders), Chapter I (pp. 101-106) and Chapter II (pp. 107-201), and Part Four (Social Analysis of Leadership), Chapter V (pp. 297-315).

power distribution to become stable. The authors demonstrated in great detail that the ITU now has, and throughout a long history has maintained, a remarkably democratic authority structure. Further, they are convincing in their contention that the ITU does not represent an organization which is merely in the early stages of Michels' process.

The argument in Union Democracy rests on the proposition that an active, two-party political system can prevent leaders from increasing their relative power. It is not clear in the book whether the authors wished to contend that a formal two-party system is necessary to this process or merely sufficient. It is apparent, however, that they considered active participation by rank-and-file essential and that a two-party system supports high activity rates.

It is difficult to reconstruct the Union Democracy argument because of the large number of variables which are introduced, each of which is discussed as if it were a necessary condition of the process. The very mound of evidence which is so convincing in its descriptive function leads to numerous, sometimes inconsistent arguments aimed at partial explanation, the total set of which lacks systematic integration.

Nevertheless, while I cannot deal with all of the points made in Union Democracy, it is not misrepresentation to claim that the major points of stress generally coincide with those of Michels. These points are:

1. A two-party political system generates its own condition of existence because, through conflict and competition, it generates high rates of rank-and-file participation.[5]

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[5]See the following sections of S.M. Lipset, M. Trow and J. Coleman, Union Democracy. New York: Doubleday & Co., 1956: Chapter 13 (Functional Consequences of Legitimacy of Opposition), pp. 294-305; Chapter 14 (Bases of Political Cleavage in the ITU), pp. 306-347; and Chapter 18 (Why Democracy in the ITU?), p. 449.

The two-party system checks Michels' principle of least action because a political identity serves to convince members that they must actively compete with an opposing group if they wish the benefits provided by the organization to reflect their preferences.

> 2. An active, two-party political system can keep rewards accruing to high office low, thereby limiting the vested interests which leaders have in keeping their positions.[6]

This is essentially a special case of the first point. In a two-party system, rank-and-file members will exercise discretion rights. Therefore, if the members are, in fact, active and if they have discretion rights over rewards of high-office, they can keep these rewards low. The authors indicate that limiting these rewards does not, in their empirical instance at least, reduce competition for high office. Indeed, they contend that the ITU can boast a very high rate of competition for leadership positions. How this occurs will be discussed later.

> 3. A two-party system implies multiple leadership levels, high turnover in office, and internal recruitment of leaders, all of which serve to reduce differential task-competence between leaders and non-leaders.[7]

Lipset et al. agree with Michels that task competence is valued, but they deny that it need be centralized in the hands of a few.

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[6] Ibid. See Chapter 3 (History of Internal Conflict in the ITU), pp. 59-69; Chapter 10 (Leadership in a Two-Party Union I: Requirements of the System), pp. 227-247; Chapter 11 (Leadership in a Two-Party Union II: The System at Work), pp. 264-268; and Chapter 13 (Functional Consequences of Legitimacy of Opposition), pp. 302-304.

[7] Ibid. See Chapter 10 (Leadership in a Two-Party Union I: Requirements of the System), pp. 227-247; Chapter 11 (Leadership in a Two-Party Union II: The System at Work), pp. 248-269; Chapter 18 (Why Democracy in the ITU?), p. 453.

4. In an active, two-party system, efficiency will not be a primary value.[8]

A highly efficient, centralized decision-making system is valued only if it is also viewed as effective--i.e., as a quicker way to achieve desired results. Since the members of a two-party system cannot count on the leaders being members of their own political party, they cannot count on a decision-making system centralized in the hands of those leaders producing satisfactory outcomes.

5. Strong intra-organization friendship bonds increase rates of participation among rank-and-file.[9]

The authors suggested that this increase occurs because friendship ties (a) increase the rewards of participation by making it socially gratifying, and (b) provide informal arenas for political party activities and proselytizing. Michels did not deal directly with this variable, except to imply that over time and as organizational size increases, such effects are not an important block to increased centralization of power.

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[8] Ibid. See Chapter 3 (History of Internal Conflict in the ITU), pp. 35-76; Chapter 7 (Determinants of the Occupational Community II), p. 152; Chapter 12 (Normative Climate of ITU Politics: Legitimacy of Opposition), pp. 27-292; and Chapter 13 (Functional Consequences of Legitimacy of Opposition), pp. 293-305.

[9] Ibid. See Chapter 4 (Secondary Organization and Trade-Union Democracy), pp. 77-91; Chapter 7 (Determinants of the Occupational Community II), pp. 143-159; and Chapter 9 (The Chapel as a Political Unit), pp. 201-226.

A Common Rationale

These two arguments make different predictions for what can be expected to occur in an organization which begins with a flat distribution of power. Michels described a developmental process with exactly one end state--centralized power. Lipset et al. described a mechanism by which a flat power distribution can itself be a stable state and not merely an early stage in Michels' process. In spite of their differences, I believe that both arguments employ a similar explanatory system and that this system is consistent with both predictions.

The major issue which engaged both Michels and Lipset in arriving at their respective conclusions is the importance of participation rates. For Michels, oligarchy is the situation in which non-leaders do not participate in organizational decision-making; Lipset et al. counter-argued that under certain circumstances, rank-and-file will actively dominate it. It is important to note that both account for participation in terms of individual motivation processes. That is, both attacked the problem by discussing factors which motivate an individual to participate in organizational activities.

Motivation for leadership

According to Michels, the motivation for engaging in the activities of leadership lies in the high rewards which accrue to positions of high office. While *Union Democracy* focuses primarily upon the motivation for rank-and-file participation, the authors indirectly dealt with *officer* motivation in their discussions of high turnover among leaders, a condition which is described as essential to a stable, flat power distribution.[10] In those discussions, the authors indicate basic agreement with Michels about the motivational value of rewards of high office when they suggest that these rewards can be so limited as to greatly reduce the development of vested interests and yet still provide incentive for office seeking.

Rank-and-file motivation

If the rewards of high office account for leadership activities but rank-and-file are not so rewarded, what is the incentive for activity among non-leaders? In particular, what motivation is there for rank-and-file participation other than that aimed at securing leadership positions? Michels argued that there is no other effective incentive. He did not offer a rationale for his principle of membership apathy but simply asserted that the reward structure of an organization is motivating only for leadership activities. His discussion of the importance of organizational efficiency implies that while the decisional outcomes in the organization have reward value to rank-and-file, that reward is sufficient to motivate passive membership only. Lipset et al. disagree; their discussion of the two-party system suggests rather directly that the opportunity to improve the likelihood of highly rewarding outcomes can generate very high rank-and-file participation.[11]

Focusing upon the reward value of decisional outcomes discloses an implicit, but important, commonality between the two arguments.

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[10] Ibid. See Chapters 11 (pp. 248-268) and 13 (pp. 293-305). Michels' clearest, succinct statement on the importance of leadership turnover is in Political Parties, Part Two, Chapter 1, p. 97.

[11] Ibid. See Chapter 13, pp. 296-298.

Both studies deal with organizations which provide collective benefits to all members, rather than just to those who participate in decision making. In such organizations, rewards associated with a decisional outcome accrue to all members, leaders and non-leaders.[12] (In the ITU, for example, a negotiated wage is paid to all members in good standing, whether or not they participated in the decision process which resulted in that wage.) The significance of this is that while leaders receive additional rewards for their activity in the decision-making process, rank-and-file members receive nothing over and above the reward value of the decisional outcome for having participated. That is, among the rank-and-file, the reward value of an outcome is gained as long as a decision gets made; helping to make the decision results in no additional payoff. As long as rewarding outcomes occur without participation, it seems that Michels' principle of least action would apply. Indeed, Michels argued that in order to maintain his positional security, a leader must convince the rank-and-file that they are receiving outcomes which are in their best interest. A major tactic used by leaders for this purpose is maintaining secrecy about the decisional alternatives.

It is within this context that Lipset's discussion of the two-party system is crucial. A two-party system makes it usual that more than one alternative is presented to the rank-and-file for evaluation. Indeed, such a system is defined by patterned and open disagreement over what constitutes a satisfactory outcome. The decisional system, left untended, cannot be counted upon to produce satisfactory outcomes.

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[12] It is not clear that either author meant his argument to apply only in such cases.

A member of one party knows that there is another group in the organization which differently evaluates outcomes. Prior to a decision opportunity, he expects that the members of the other party will very likely want to see a different alternative from the one he prefers selected as the final group outcome. Since the selection of a group outcome means deciding upon one and only one alternative, it is to the individual's advantage to do what he can to ensure that the alternative most rewarding to him gets selected by the group. If, through inactivity, he permits the decision to be made by members of the opposing party or by leaders who may be members of that party, he can be fairly confident that the outcomes will not be those which are most rewarding to him. According to Lipset, this desire to increase the likelihood of rewarding outcomes accounts, in part, for leadership motivation as well. Rank-and-file participation in a two-party system, then, represents an influence attempt--i.e., an effort to improve the probability of rewarding decisional outcomes.[13]

Participation costs

Michels and Lipset agree that the rewards of high office are motivating, but they disagree about the motivational value of rewards associated with decisional outcomes. Implicit in Michels argument is the idea that the "natural state" of a non-leader is inactivity and that activity must be induced. More current literature suggests the

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[13]Michels deals in detail with an alternative form of contention over the reward value of decisional outcomes--that which occurs between leaders and their followers. He argues that this form of patterned disagreement reduces participation rather than increases it. The relevance of this to Lipset's argument will be taken up later.

alternative idea that organizational participation costs the individual something because it involves the investment of time and energy which could otherwise be spent in the pursuit of other rewards.[14] The idea of costs is not unfaithful to Michels' thinking; his discussion of the techniques available to leaders to discourage challenge from their followers lends itself to the inference that the impact of such techniques is to raise the cost of rank-and-file participation.

Summary

I have argued so far that both studies concern themselves with expected rates of participation, that both propose that high participation rates by rank-and-file tend to protect a flat power distribution, and that both are concerned with the conditions which affect participation rates. Michels said that, in the long run, there are no conditions which maintain high rank-and-file activity rates; the reward structure of the organization will inevitably become stabilized in such a way as to be motivating solely for leaders. Lipset et al., on the other hand, contended that high participation will occur if the rewards of decisional outcomes are known to be at stake.

I have tried to show that a social-psychological, cost-reward rationale underlies much of both arguments. I do not mean to ignore the fact that both studies are concerned with other conditions of activity, in particular with structural features of organizations. To be faithful to either study, the motivational process must be imbedded in

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[14] See William A. Gamson, Power and Discontent. Homewood, Illinois: The Dorsey Press, 1968 and George C. Homans, Social Behavior: Its Elementary Forms. New York: Harcourt, Brace & World, Inc., 1961.

a social structure which has at least some of the characteristics central to their studies. Before turning to that task, however, it seems appropriate to exploit the emphasis in both studies upon costs and rewards.

CHAPTER II

DEVELOPMENT OF THE MODEL

The Formulation

The following formulation deals with subjective expectations and with evaluations of the gains and losses an individual uses in deciding whether or not to participate in a decision-making opportunity. These subjective factors are specified as elements of a probabilistic utility structure to which the Camilleri-Berger gain-loss model[15] will be applied in an effort to predict participation rates.

Since I take as my starting point the implied agreement between the two studies that _the ability of leaders to increase their power in a flat authority system depends upon rank-and-file participation rates_, the focus will be primarily upon non-leader participation. I will not, however, be concerned here with all forms of rank-and-file participation. In particular, I shall not discuss participation which is aimed at securing leadership positions or informal influence processes. The situation under consideration is similar to that which _Union Democracy_ describes in discussing why a member decides to go to a union meeting and vote: under what conditions will a rank-and-file member choose to accept a legitimately offered opportunity to participate in collective decision making? There are, of course, many other activities in an

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[15]Santo F. Camilleri and Joseph Berger, "Decision-Making and and Social Influence: A Model and an Experimental Test," _Sociometry_ 30, no. 4 (December, 1967), 365-378.

organization which a non-leader can choose to participate in besides decision-making, and it may be that even these fit the proposed formulation. However, it is the decision-making system which is central to Michels' and Lipset's studies and I will attempt to remain faithful to that focus.

I noted earlier that participation in the decision-making process costs the rank-and-file member something (designated -X). Costs are the subjective utility value of whatever an individual has to invest in order to participate. In as much as time and energy are two basic investments, costs can be expected to vary widely over individuals and over time. Time and energy are valued in terms of the reward utility of alternative ways in which they can be invested. If the member decides not to participate, he saves that cost.

Both Lipset and Michels stressed the importance of membership satisfaction with decisional outcomes: rank-and-file members evaluate outcomes in terms of their subjective reward value. This premise, coupled with the assertion that participation costs, suggests the following restatement of the principle of least action: members desire the highest possible reward for the lowest possible cost.

Lipset maintained that in a two-party system, members evaluate the known alternatives from which an outcome is expected to be selected in deciding whether or not to participate in the selection process. The selection of an outcome entitles each member to the same "commodity" designated by that outcome, but it is not necessarily the case that each individual values that commodity to the same degree. For some, it may be highly rewarding; for others, it may have negative utility.[16]

Lipset suggested further that the patterned disagreement defined by a two-party system indicates to the individual how likely it is that the alternative which he finds most potentially rewarding will, in fact, be selected as the final outcome. In light of this expectation, _the member's decision to participate is a decision to make an influence attempt--i.e., it is a conscious effort to improve the likelihood that a preferred alternative is selected as the group outcome_.

I am concerned, then, with situations in which _individuals do evaluate known decisional alternatives_. For our purposes, each set of ranked, evaluated alternatives will be called a preference ordering. The selection of one alternative as the group decision assigns (probabilistically or determinately) to each individual the utility value of that alternative. The decision to participate is influenced by the _expectation_ that the rewards of a preferred alternative are at stake.

Imagine a decision-making situation which has two alternatives, Y_1 and Y_2. Alternative Y_1 has a positive utility value (designated u_1) for a given actor. Y_2 has no utility value for him. If he is given the opportunity to exercise influence in the selection of one of these two as a group outcome, I propose that his decision to accept or decline that opportunity will be a function of the cost of participation ($-X$), the utility value of the two alternatives ($u_1(Y_1)$ and $0(Y_2)$), and his subjective assessment of the likelihood that each alternative will

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[16]For a technical discussion of the idea of collective good used here, see Mancur Olson, _Logic of Collective Action_. New York: Harvard University Press, 1965.

be selected with and without his participation. If we let α designate his subjective expectation that Y_1 will be chosen given that he does make an influence attempt and β symbolize the subjective probability that Y_1 will be selected even if he doesn't participate, then the utility structure can be expressed as follows:

$$A: \quad -X + \begin{cases} \alpha & u_1(y_1) \\ \bar{\alpha} & u_2(y_2) \end{cases}$$

$$\bar{A}: \quad 0 + \begin{cases} \beta & u_1(y_1) \\ \bar{\beta} & u_2(y_2) \end{cases}$$

where A means "makes an influence attempt" and $\bar{A}$ means not A, and: $u_2 = 0$.

What the diagram indicates is that if the individual makes an influence attempt (i.e., chooses branch A), he forfeits whatever he has to expend in order to do so (-X), and with probability α, he expects to gain the rewards he associates with alternative Y_1. However, he is also aware that even if he does make an influence attempt, with some probability (designated $\bar{\alpha}$), he will fail. If he fails, he still forfeits the cost of participation but gains nothing (since $u_2 = 0$). Letting $u_2 = 0$ means that if the group chooses Y_2, the individual who prefers Y_1 loses only what he stood to gain if Y_1 had been chosen. No additional loss is incurred unless he chooses to make an influence attempt for Y_1, in which case he loses -X. (While the decision to let $u_2 = 0$ was made primarily to simplify the presentation, its substantive interpretation is reasonable. u_2 may, of course, take on other values.)

If the individual does not make an influence attempt, he is spared the price of participation and, with probability β stands to gain the rewards of Y_1 anyway. If the individual decides to act, it is reasonable to assume that he expects $\alpha(Y_1)$ to be greater than $\beta(Y_1)$.

According to an application of the Camilleri-Berger gain-loss model[17], the probability that an individual will make an influence attempt is equal to the ratio of the gain in acting to the combined gain of both alternatives--i.e., the gain in acting plus the gain in not acting. Formally expressed:

$$P(A) = \frac{G(A)}{G(A) + G(\bar{A})} = \frac{\alpha u_1 y_1}{\alpha u_1 y_1 + \beta u_1 y_1 + X}$$

where G = gain.

Before continuing with the analytic discussion, I will digress a bit to acknowledge the fact that I have not dealt with the tradition in the literature which suggests that participation itself is rewarding for the individual. My failure to do so represents my efforts to remain faithful to Michels and Lipset. Both of their studies are at odds with that tradition and are much more in keeping with Gamson's statement on the issue:

> To increase the participation of a group...may mean to increase its influence over decisions. If there is increased satisfaction in such situations, it is because the modified outcomes are closer to what the ...group desires. It may have very little or nothing to do with the fact of participation itself. If the significance of participation stems from the attendant influence, then we should expect the same increase in satisfaction and commitment that we would get if outcomes were similarly modified without an increase in participation.[18]

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[17]Camilleri and Berger, _op_. _cit_.

[18]Gamson, _op_. _cit_., p. 139.

The preceding formulation agrees with this statement and with Michels and Lipset. Member satisfaction is determined by the reward value of outcomes; participation itself is satisfying only indirectly by its effect in securing more rewarding outcomes.

Brief Analysis of Some Formal Properties of the Model

This examination of some of the formal limits and implications of the preceding model will be brief; lengthy elaborations are presented in Appendix A.

First, the model does not apply if the individual believes that the outcome is determined.[19] Second, the model says that the individual will not participate if he expects to gain or lose nothing as a result of the decision. That is, if the value of Y_1 is also 0 for him, then $P(A) = 0$.

If Y_1 has positive utility value for the individual, then βY_1 is his expectation of the likelihood that his preferred outcome will be selected by the group without his having to make an influence attempt. If βY_1 is close to 1, then the individual believes that the authorities (the total group, the officers or whatever) have preference rankings congruent with his own and that the decision will be made accordingly.

Whenever α equals β, the individual will participate with some probability less than 1/2. That is, he may believe that his participation will not improve the probability of a preferred outcome and yet he will participate some small percentage of the time provided

[19] That is, if the individual believes that one or the other alternative is certain to be selected, then we cannot apply the model to predict what he will do. However, as long as the individual feels that neither alternative is certain to be selected, we can apply the model even if he believes that his own participation will not affect the outcome (i.e., even if $\alpha = \beta$).

Y_1 has some utility for him. Since it is not important to either Lipset's or Michels' argument to deal with expected negative influence, $\alpha \geq \beta$ in all cases.

We will return in a moment to the relative value of α to β. First consider the cost-reward ratio. It can be shown that the probability of making an influence attempt depends not upon the absolute values of X and u_1Y_1 but only upon their ratio.[20] This is not the case for α and β, however. Knowing only their ratio is not sufficient for prediction. Neither is it sufficient to know the difference between α and β. The P(A) depends upon their absolute values. It can, however, be shown that an increment in α relative to β always increases P(A).[21]

Since it is the ratio of cost and reward, rather than their absolute values, which is important, little more need be said about them at this time. However, it is important to deal with variations in the absolute values of α and β. Consider first the situations in which $\alpha = \beta$; the following three general situations can be distinguished.

1. The probability of a preferred outcome being chosen is low, whether the individual acts (makes an influence attempt) or not.

2. The probability of a preferred outcome being chosen is high, whether the individual acts or not.

3. The probability of a preferred outcome being chosen is "fifty-fifty", whether the individual acts or not.

The preceding model predicts that if the cost-reward ratio is held constant across these situations, the first yields lower participation rates than the second which in turn yields lower rates than the third.

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[20]See Appendix A, Part 1, for algebraic demonstration of this.

[21]See Appendix A, Part 1, for algebraic demonstration.

The highest participation rates are predicted when the probability of a preferred alternative being selected is believed to be dependent in any strong way upon participation (i.e., when $P(Y_1|A)$ is believed to be considerably greater than $P(Y_1|\bar{A})$. The same absolute difference between these two conditional probabilities produces higher participation rates as the value of β increases.

The Structural Context

So far I have discussed the intra-individual factors in the model--the subjective evaluation of cost and reward and the individual's expectations concerning the likely outcome with and without his participation. However, these expectations are based upon structural features of the organization--features which influence participation because they affect the way in which members believe that participation determines decisional outcomes. The focus here will be upon the two particular features which most concern Lipset and Michels: the authority structure and the agreement structure.

The authority structure is the allocation of decision-making rights over the organizational hierarchy.[22] Lipset discussed how a flat authority distribution is maintained; he said little about how one

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[22] I do not wish to deny that there are other important rights connoted by the term, authority. Social control rights were specifically mentioned in the introductory paragraphs of this paper. However, these rights are not entirely independent; a group cannot maintain its decision-making rights in the face of disagreement without also having some sanction rights. By using this definition, I do not mean that decision-making rights are all that need be considered, but only that they constitute the central core of the argument at hand; any correlated rights of authority are of central focus only because they maintain the decision-making distribution.

comes to be. His argument rests upon the premise that the organization has an articulated, flat power distribution to begin with. Michels, on the other hand, claimed validity for his argument irrespective of the kind of authority system the organization begins with. He argued specifically within the context of organizations which began with flat power distributions.[23] The focus of disagreement between the two, then, is the nature of the conditions which maintain flat authority systems.

In a flat authority system, the right to make binding decisions for the organization is dispersed among all franchised members. The action of the officers may be necessary for an outcome to be binding, but it is not sufficient. In such a system, a vote by some quorum of the general membership is essential to the selection of a group outcome. All who vote are the authorities, and leaders and non-leaders alike must influence anyone who is franchised to secure their preferred outcome.

In an oligarchy, the right to make binding decisions belongs to the incumbents of high office. They need influence the rank-and-file only because they value consensus or morale per se, because consensus and morale are valuable to maintaining their positions as leaders, or because they wish to spare themselves possible sanction costs. The influencing of rank-and-file in no way increases the legitimacy or binding nature of the decisional outcome.

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[23]Actually, Michels was concerned with the unorganized group which, in the process of becoming an organization, develops a centralized power distribution rather than the democratic one which had been intended. However, I cannot deal here with how organizations come to be, and Michels claimed validity for his argument in <u>all</u> organizations in any stage of development.

For our purposes, a decision is binding if:[24]

a) it is accepted as binding by the group members, for whatever reason, or

b) if it is not accepted, legitimate sanctions can be implemented by those who made the decision.

It is not essential that the sanctions be sufficient to ensure specific performance in compliance with the decision, but only that those making the decision have the legitimate capacity to negatively sanction members who fail to comply. This capacity exists even though the consequences of enforcement or sanction lead the authorities to change the nature of their decisions. If some subset of the total membership can consistently select one alternative in a decision situation, with the result that all members treat that alternative as the group outcome or suffer sanction, then that subset constitutes the organization's authorities.

According to Michels, whatever the intended authority distribution, the officers will eventually become such a subset. While he did not completely specify how this happens, the method implicit in my elaboration of the preceding model is consistent with his argument. Members who expect to receive satisfactory outcomes without participation will be less likely to make influence attempts than those who feel less confident of that occurring. That is, members who find that they are getting highly rewarding outcomes without participation will trust others--particularly officers who are directly rewarded for such activity--to make the decisions. Over time, through procedures which

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[24] My discussion of authority and binding decisions rests heavily upon William Gamson's elaboration of both concepts in Power and Discontent, op. cit.

Michels does describe, the de facto centralized decision-making procedures become legitimated and difficult to reverse. The rank-and-file come to lack the resources, information, expertise and access to sanction rights which would be necessary to take back control over decision-making. Thus, I agree with Michels that oligarchy does follow from the condition of low participation, but I do not concur that low participation is inevitable in an already existing flat power distribution. Low participation rates occur in flat authority systems when satisfactory outcomes can be expected without participation. (I am assuming that the organization is dealing with decisional alternatives which the rank-and-file do value).

What Union Democracy discusses are the circumstances under which the franchised rank-and-file in a flat authority structure will consistently exercise their decision-making rights and refuse to accept any other method of arriving at group outcomes, thus aborting Michels' process at the very beginning. In keeping with the argument in the preceding paragraph, this implies that the conditions Lipset et al. discuss are those which prevent the general membership from being able to count upon satisfactory outcomes without participation. Lipset's conclusions, therefore, rest on having a flat power distribution to begin with and a particular kind of agreement structure.

At the core of the two-party system Lipset described is a stable, known, horizontal pattern of disagreement over what constitutes a satisfactory outcome--i.e., patterned differences among the individual preference rankings. Such a predictable pattern of disagreement in a flat authority system means that outcomes cannot be expected to be automatically rewarding to members of one party if members of the opposing faction have control of the decision-making system.

Throughout Union Democracy, stress is placed upon the fact that the conflicting factions in the ITU are evenly matched; neither party consistently loses over decisional situations. The authors did not explicitly state that contending factions must be evenly matched if a flat authority system is to remain stable, but it follows from their own argument as well as Michels' that a very small discontented group cannot normally exercise sufficient influence to secure enough rewards to make their continued participation profitable.

So far I have argued that high participation rates maintain a flat power distribution and that patterned, horizontal disagreement maintains high participation rates in a flat authority system. Neither Lipset nor Michels dealt with what can be expected in an oligarchy which has such an agreement structure. The model predicts that a patterned, horizontal disagreement structure will increase participation even in an oligarchy as long as the leaders (the authorities in this case) are not uninfluenceably biased in favor of one of the contending groups. The model makes a similar prediction for participation rates in an oligarchy which has a vertical disagreement pattern (i.e., leaders consistently disagree with non-leaders); as long as the leaders are influenceable, participation should increase. More generally, the model predicts that patterned disagreement increases participation if participation increases the probability of satisfactory outcomes. According to this formulation, then, high participation rates are possible in any type of authority distribution. It may be that high rates are more characteristic of flat authority systems than of centralized ones, but if so that is an empirical phenomenon to be explained. What I wish to avoid is <u>defining</u> any form of authority distribution in terms of participation rates.

For reasons of analytical closure, the circumstances of vertical disagreement patterns in a flat authority system should be mentioned. It is not surprising that Lipset did not dwell on this; in his empirical instance, the officers in disagreement with their membership would be quickly voted out of office. Michels, on the other hand, expected exactly such a division to develop in any organization. He argued, however, that the disagreement pattern is maintained by the increasing power of the officers, and it is precisely that increase which active participation in a flat authority system prevents.

CHAPTER III

THE DESIGN

The General Design

The focus of this research is upon specific variations in the authority structure and the agreement structure as these affect the conditional probability of achieving satisfactory outcomes. This means that we must also deal with variations in the influenceability of the organizational authorities. I will not, however, deal with the structural or psychological factors which account for variations in influenceability. Neither will I make any effort at this time to separate the two forms of influence, persuasion and conformity. (In the language of the model, no effort will be made to differentiate between the parameter c and k.) This is consistent with the previously stated concern with rank-and-file activity rather than leadership activities. No attempt will be made to test the entire formulation. The aim is simply to gather some experimental evidence concerning some specific effects of variations in the authority system, disagreement structure and influenceability and to examine how well the gain-loss formulation can predict the findings.

Concerning the decision-making structure, we will consider two types--the committee structure (i.e., a flat authority system) and the advisory group structure (i.e., a centralized authority system). In the former, binding decisions can be made only by some quorum of the members.

All members are franchised and no decision so made is subject to reversal or veto by the leader. This is the essence of the authority structure which Lipset described.

In the advisory group, binding decisions are made by the designated leader, but the members have a legitimate opportunity to influence the leader's decisions by expressing their preferences. The leader's choice alone, however, determines the group outcome.

I wish to argue that the structure of a flat power distribution generates higher participation rates than does that of a centralized authority system. Consider the following limited case. Imagine a three-person group with a designated leader. Imagine further that all three persons agree on the preferred outcome. If the leader can make the decision without action by the other two members, then only the leader need act to provide all three with that good. If he is rewarded directly for that activity, the situation is equitable. If, however, the decision must have the action of one other member in the group to be binding, then in order for anyone to receive the desired reward, at least one rank-and-file member must decide to pay the cost of participation. If this group encountered a series of such situations, one might well expect that, in practice, the leader's action alone would come to be accepted as binding. That is, a flat authority system is not likely to remain stable under continued high agreement precisely because it requires that unnecessary participation costs be paid by rank-and-file.

Consider now the patterned disagreement of the sort which Michels discussed. Assume that the leader of our group consistently disagrees with the other two members on preference rankings.

The prediction is that rates of participation will be higher, regardless of the authority structure, than if the members consistently agreed. However, the rates will remain high in the advisory group only if their advice is heeded--i.e., if the two non-leaders succeed in influencing the leader a sufficient percentage of the time so that rewards received offset the cost of influence. (Admittedly, this is not a situation Michels deemed likely.) If the group has a committee structure, however, the two non-leaders can ensure their preferences consistently against a disagreeing leader. Even though such simple coalitions are not found in large groups, the point is not trivial.

The next few pages elaborate a rank-and-file member's utility structure for participation in either of the two groups just discussed. The first page represents what he can expect if he decides to participate in an advisory group in which he and O (the other rank-and-file member) have equal influence over L (the leader). The second page describes his expectations for what may happen if he decides not to participate in making the decision. The third and fourth pages elaborate the situation for an individual who is deciding whether or not to participate in the Committee group. However, the committee situation has been described there as if the individual believed no influence were possible. Variations in the values of the parameters p_1 and p_2 define alternative agreement structures for both groups. In all four situations, it is assumed that the individual whose utility structure is being outlined values Y_1 over Y_2. Any other information needed to interpret the postulated utility structures can be found on the language key on pages x, xi. All the utility structures in this paper are elaborated for situations in which the following conditions are the case:

1. P always prefers Y_1.

2. Unexpressed preferences do not affect expected outcomes.

3. P does not think O is neutral.

4. P and O are equal in their ability to influence L.

5. Consensus is neither valued nor rewarded.

6. L does not influence P or O.

7. L always votes.

ADVISORY GROUP

$P(Y_1)$

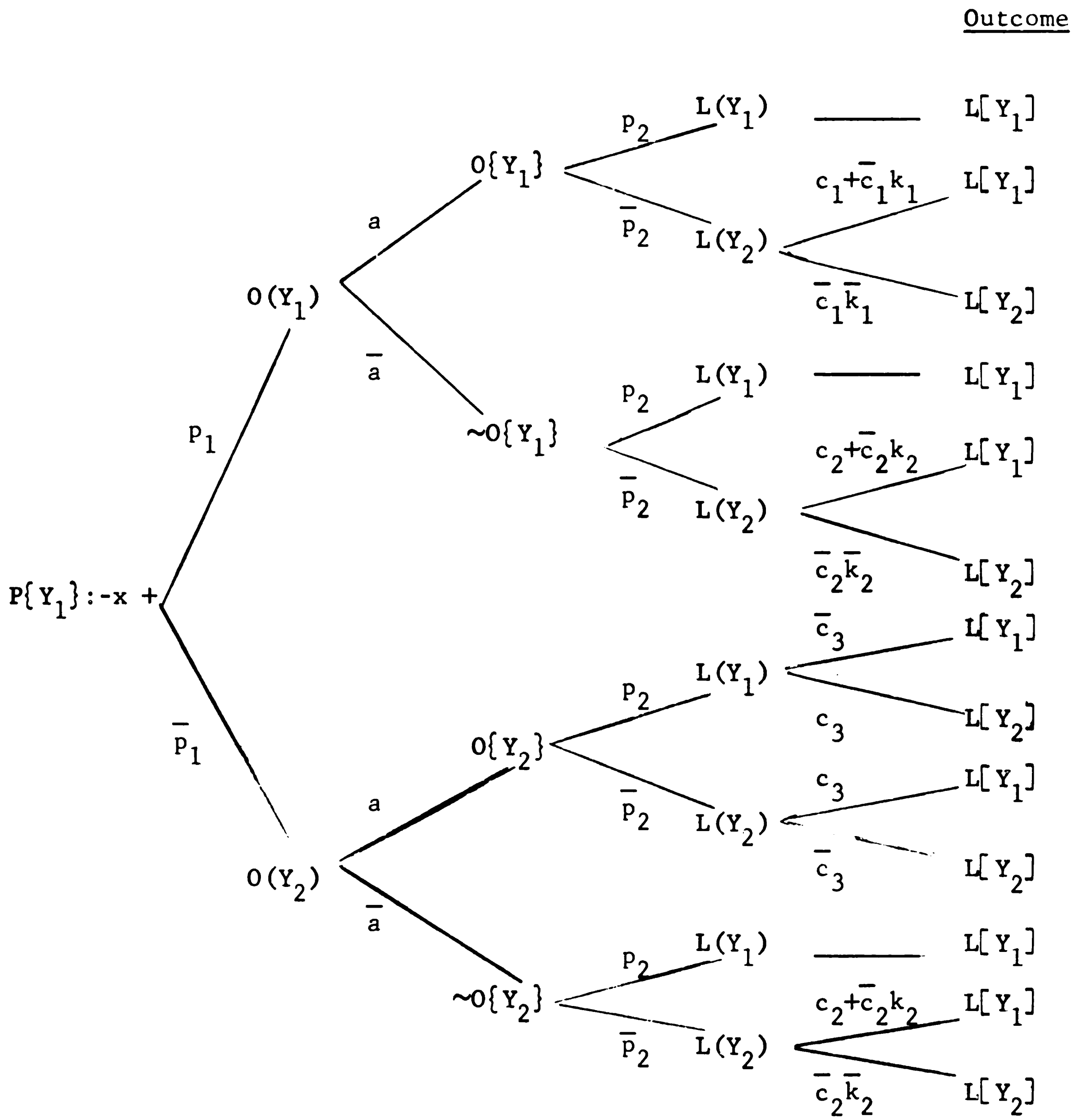


Figure 1: General utility structure: <u>ADVISORY GROUP</u>

ADVISORY GROUP

$P(Y_1)$

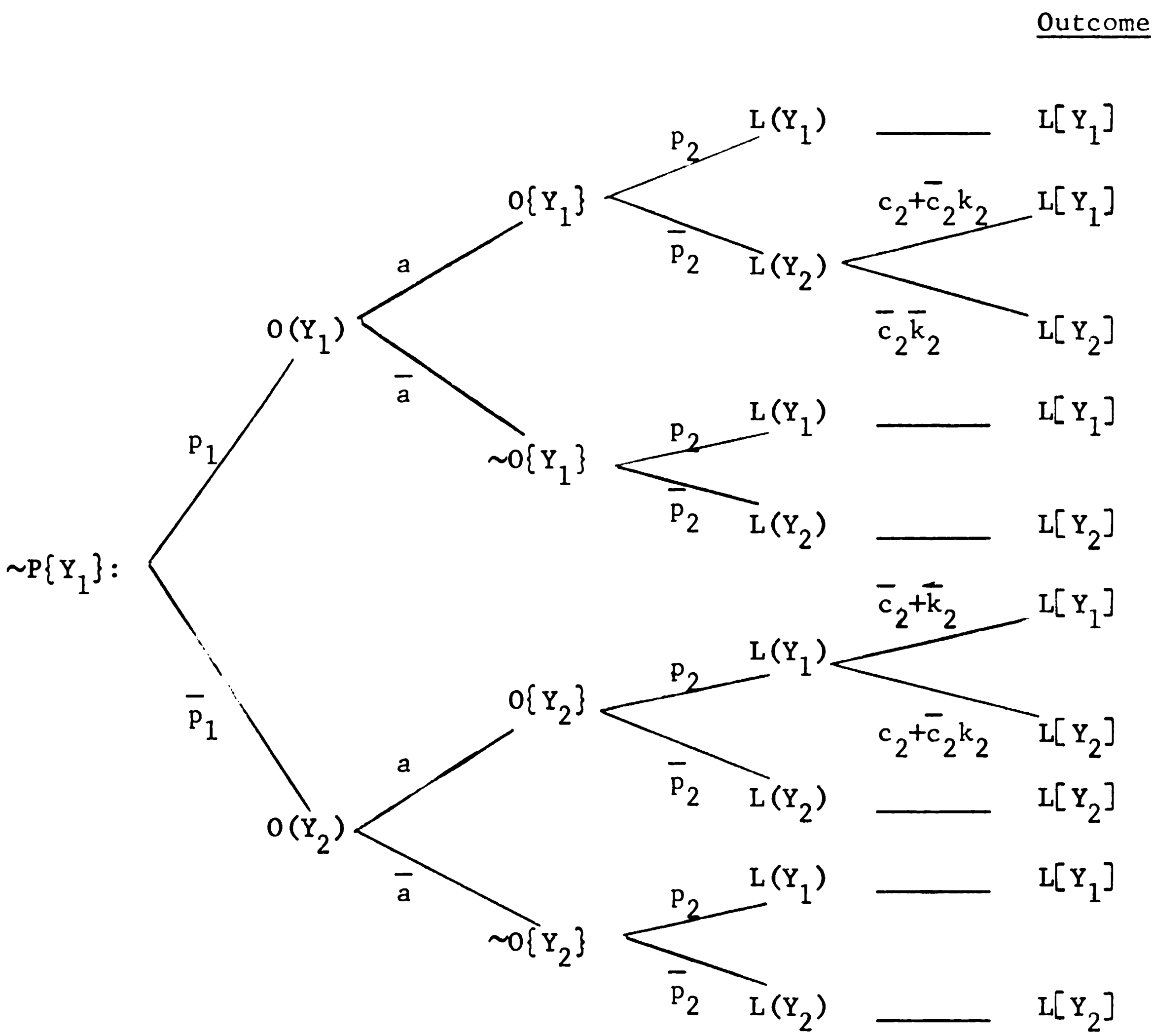
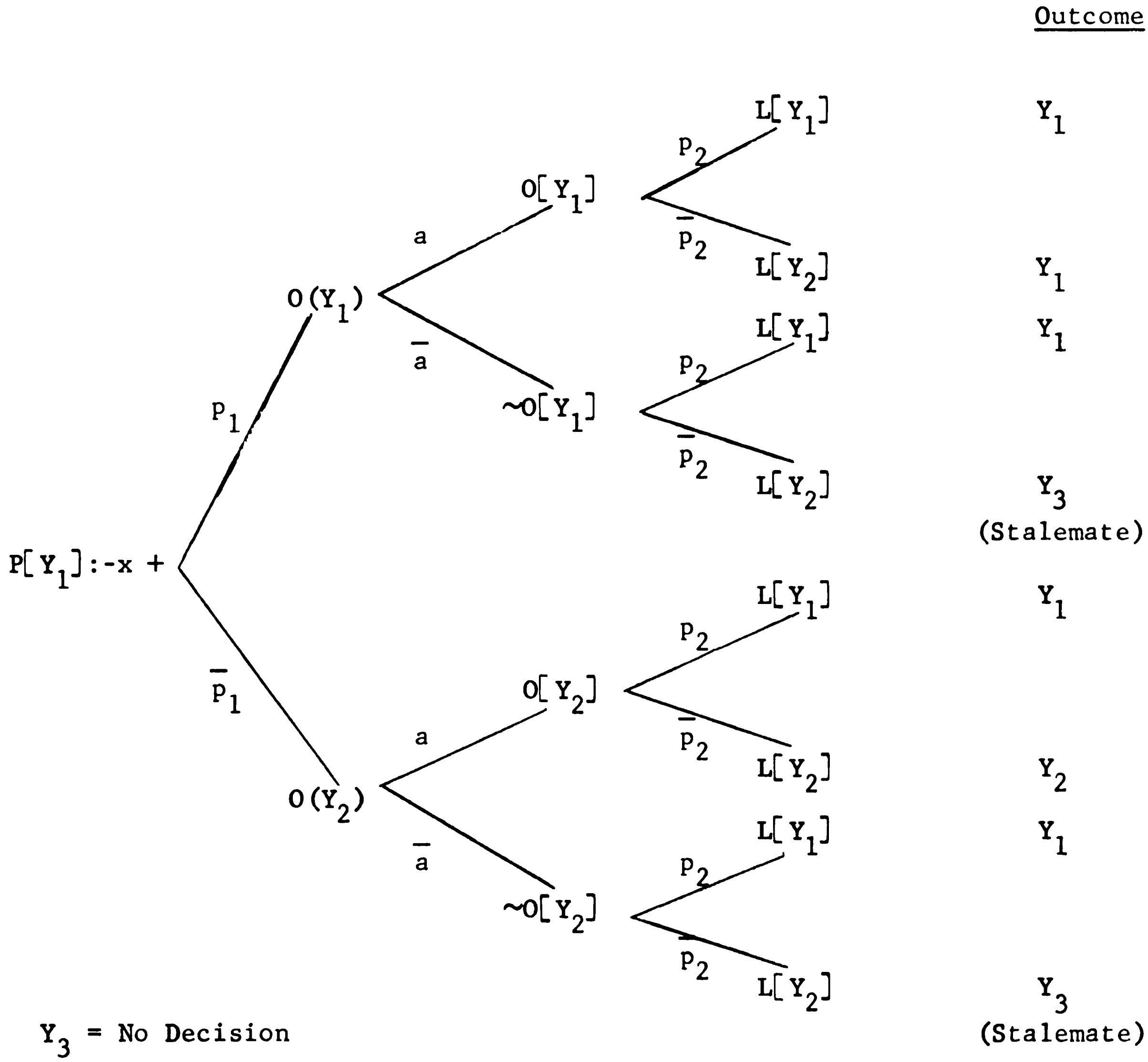


Figure 1 (cont'd.)

COMMITTEE GROUP

$P(Y_1)$

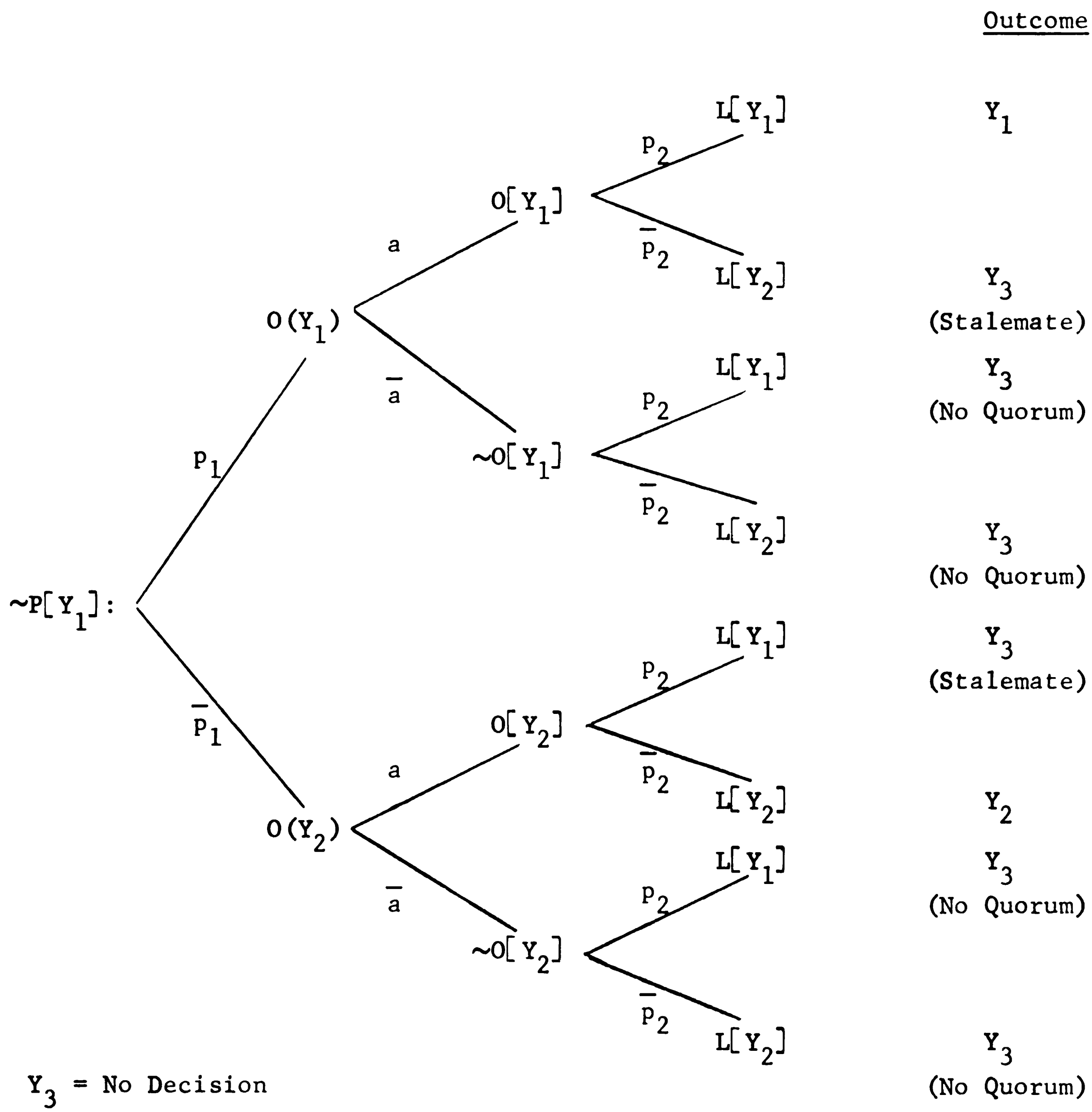


Y_3 = No Decision

Figure 2: General utility structure: <u>COMMITTEE GROUP</u>

COMMITTEE GROUP

$P(Y_1)$



Y_3 = No Decision

Figure 2 (cont'd.)

The preceding pages present the fully elaborated utility structure of a rank-and-file member who is deciding whether or not to participate in a decision-making opportunity in either of two types of groups--(1) an advisory group in which his participation is aimed at influencing the choice of the leader who is the group's authority, and (2) a committee in which each member's participation is binding in arriving at a group outcome.

The presence or absence of influence has different implications for the two groups. Influencing the leader in the committee structure may be irrelevant because his preferences and responsiveness to influence becomes unimportant in determining the final outcome if both rank-and-file members agree and vote. However, if the leader of the advisory group is not influenceable, his preferences determine the final group outcome irrespective of P and O's preferences and activity rates. Participation in such a situation would decline because it would be perceived as having no impact upon securing satisfactory outcomes.

Note also that the leader in the advisory group can always ensure that a decision is arrived at (a stalemate is not possible), and he can always ensure his own preference. In the committee, however, the leader can ensure his own preference only if one non-leader votes in agreement with him. In some circumstances, he can prevent a stalemate only by voting against his own preference.

Similarly, the members of the advisory group can never ensure the selection of their preference under a disagreeing, uninfluenceable leader. Members of the committee can always guarantee their preferred outcome if they can agree with each other and if they are willing to pay the cost of participation.

Consistent disagreement by an unresponsive leader should reduce participation in the advisory group but increase it in the committee. Under the condition of full agreement among the members on preferred alternatives, the advisory group can provide maximum satisfaction to its members without either P or O having to expend any resources. In the committee, however, at least one of the two non-leaders must participate if the outcome is to be secured.

Specification of Particular Structural Variants

In order to test parts of the argument which led up to the elaboration of this model, it is necessary to specify values of the parameters under consideration and to construct experimental analogues to the situations so specified. I have argued that in groups characterized by patterned disagreement, the individual develops expectations about the nature of the preferences of the other two group members. That is, he assigns values to p_1 and p_2. I have also suggested that the individual comes to have some idea about how responsive to influence the leader is. By putting limits on these parameters, we can represent some of the specific structural contexts which have been discussed throughout this paper. The following pages elaborate a rank-and-file member's utility structure for various possible combinations of variations in disagreement patterns and influenceability patterns as these occur in both types of authority structures.

Consensus

Consider first the condition of high agreement in both the three-person advisory group and the three-person committee. Influence is not represented in the following elaboration of this situation since it has little meaning if contention over outcomes is absent.

Under the condition of full consensus, the advisory group can have low participation rates and still maintain high collective benefits. Notice, however, that P is certain to get his preferred alternative in this situation, whether he acts or not and irrespective of whether or not O acts. The situation is determined and the gain-loss formulation for the P(A) cannot technically be applied. However, the rationale I have used indicates that neither P nor O will be very active; they stand to gain nothing by participation and participation is not free.

The situation in the committee, however, is <u>not</u> determined. If P acts, he will surely get Y_1 as an outcome, but he must forfeit -X. If he does not act, he saves -X, but runs the risk of getting nothing due to the lack of a quorum. Either he or O must participate if Y_1 is to be had.

Applying the gain-loss model to this situation:[25]

$$(1) \qquad P(A) = \frac{G(A)}{G(A) + G(\bar{A})} = \frac{Y_1}{x + Y_1(a + 1)}$$

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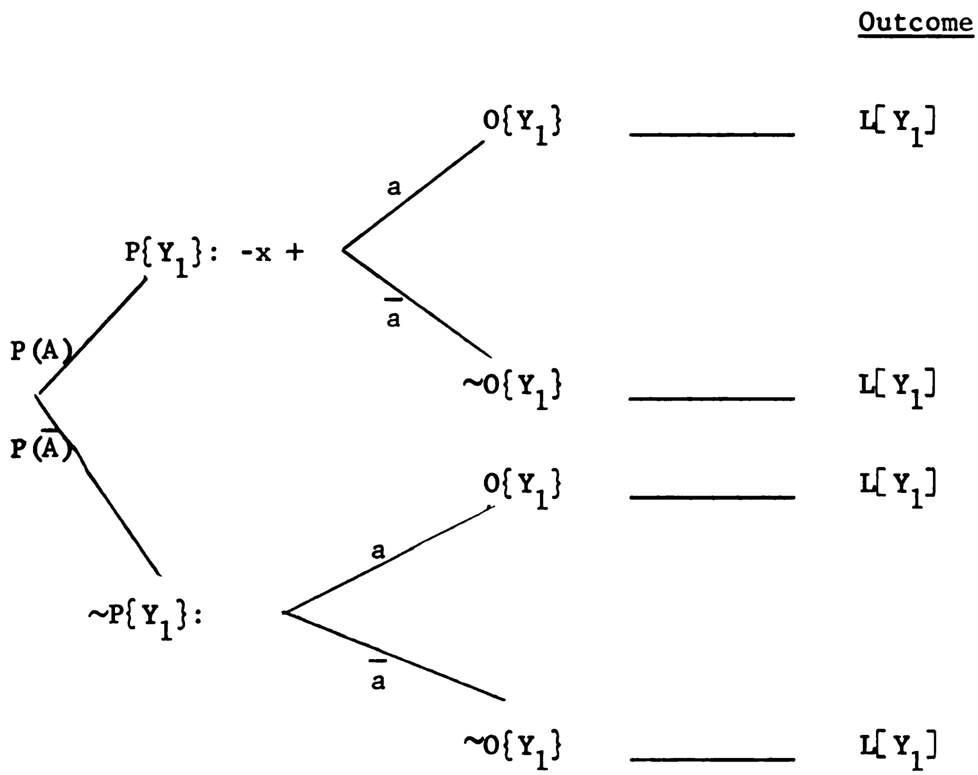
[25]In order to simplify presentation of some of the equations in this chapter, Y_1 will be used to eliptically represent $u_1(Y_1)$. Similarly, Y_2 should be understood to mean $u_2(Y_2)$.

ADVISORY GROUP: CONSENSUS

$P(Y_1)$

$O(Y_1)$

$L(Y_1)$



$G(A) = Y_1$

$G(\bar{A}) = Y_1 + x$

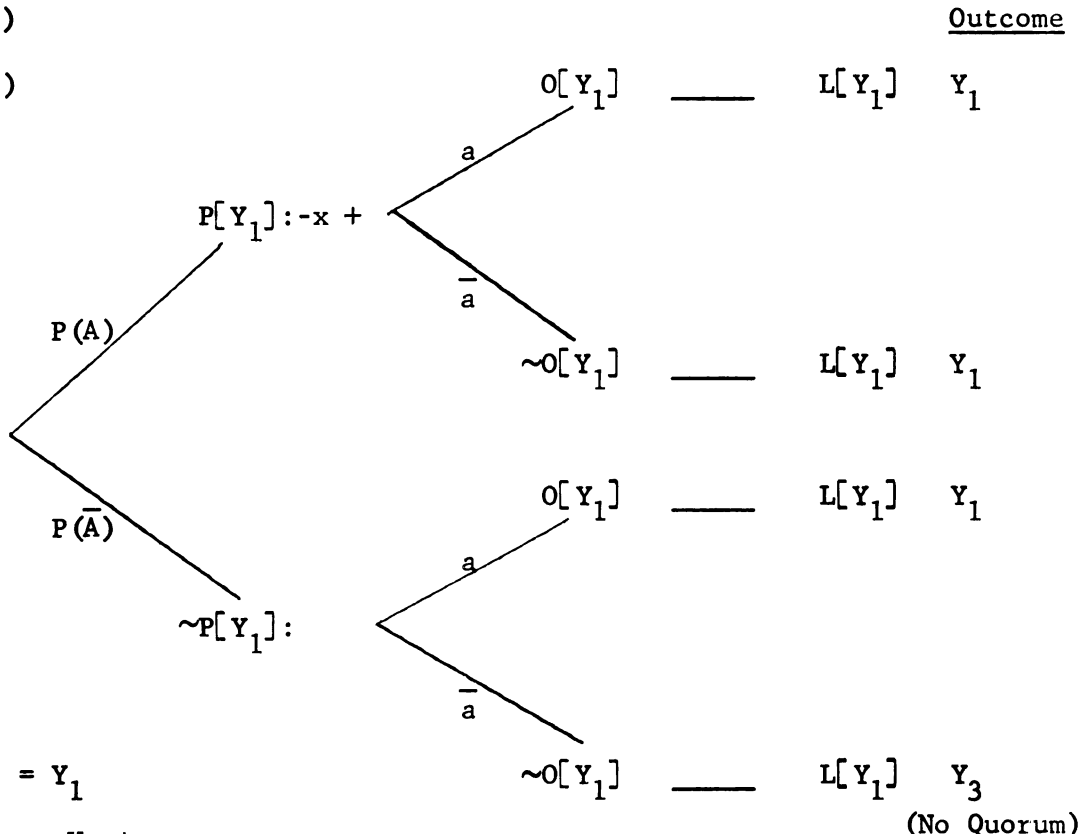
Figure 3.: Utility structure: ADVISORY GROUP: CONSENSUS

COMMITTEE GROUP: CONSENSUS

$P(Y_1)$

$O(Y_1)$

$L(Y_1)$



$G(A) = Y_1$

$G(\bar{A}) = aY_1 + x$

Figure 4: Utility structure: COMMITTEE GROUP: CONSENSUS

Vertical Disagreement, With and Without Influence

Now consider both groups when they are characterized by the situation which Michels predicts--the leader has consistently different preferences from the non-leaders. Notice (p. 43) that if influence is impossible, then the advisory group situation is again determined: the group gets what the leader wants and no activity on their part will change matters. Like Michels, I do not think members will participate once they see this is the case. However, if the leader can be influenced (p. 44) then participation again becomes relevant. The circumstances outlined for the advisory group assumes that the leader is unbiased--i.e., he is equally susceptable to influence from either P or O. Applying the gain-loss model to P's utility structure in this situation:

$$(2)\quad P(A) = \frac{G(A)}{G(A)+G(\bar{A})} = \frac{(ac_1+\bar{a}c_2)Y_1+(a\bar{c}_1+\overline{ac}_2)Y_2}{x+ac_2Y_1+(a\bar{c}_2+\bar{a})Y_2+(ac_1+\bar{a}c_2)Y_1+(a\bar{c}_1+\overline{ac}_2)Y_2}$$

Vertical disagreement in the committee never leads to a determined situation, even if influence is impossible. As long as P and O vote in agreement, the Leader is irrelevant. If either fails to participate , no decision is arrived at. Applying the gain-loss formulation to the no-influence situation in the committee (p. 45) whose leader disagrees with his followers:

$$(3)\quad P(A) = \frac{G(A)}{G(A)+G(\bar{A})} = \frac{aY_1}{aY_1+x}$$

Compare this with the same situation under the condition that the leader can be influenced (p. 46). Since we are dealing with a three-person group, influence is minimal. If P and O vote in agreement, the outcome is determined whether or not L is influenced. If neither P nor O participates, L's choice is not binding. Permitting influence in this situation only gives L the opportunity to force or prevent a stalemate when one rank-and-file member disagrees and the other does not participate. This is much less discretion than the leader of the advisory group has under the same disagreement pattern. If we assume that a stalemate has no reward value for L, but both Y_1 and Y_2 have some positive reward value for him, then the probability he would choose a stalemate equals 0, c = 1, and:

$$\text{(4a)} \quad P(A) = \frac{G(A)}{G(A) + G(\bar{A})} = \frac{Y_1}{x + Y_1(a+1)}$$

Re-expressed in order to make a comparison to the no-influence situation:

$$\text{(4b)} \quad P(A) = \left[\frac{aY_1}{x + aY_1}\right]\frac{+\ \bar{a}Y_1}{+\ Y_1}$$

The part of the equation in brackets is the formula for no influence; the remaining factors indicate the change in the P(A) due to Leader influenceability.

It should be noted that the equation for influence (4a) is the same as that for the situation of full consensus in the committee (see page 37, (1)). Formally, the situations are similar although they have different substantive implications for the stability of the power distribution. Under full consensus, it is reasonable to argue that P and O would come to accept L's choice as binding; under vertical disagreement, that would not be expected.

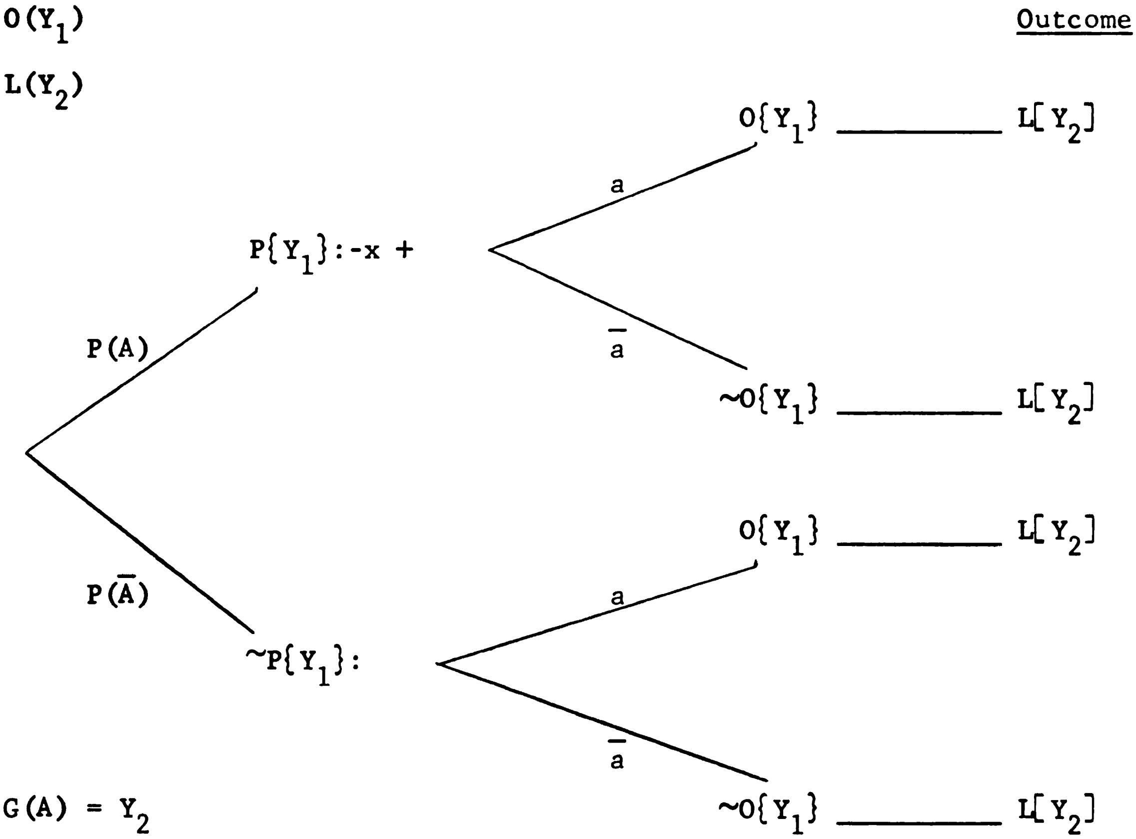
Algebraically, it is difficult to compare the advisory group predictions to those for the committee since the value of the influence parameter (c) enters in as an unknown in the advisory group situation.

ADVISORY GROUP: VERTICAL DISAGREEMENT - NO INFLUENCE

$P(Y_1)$

$O(Y_1)$

$L(Y_2)$



$G(A) = Y_2$

$G(\bar{A}) = Y_2 + x$

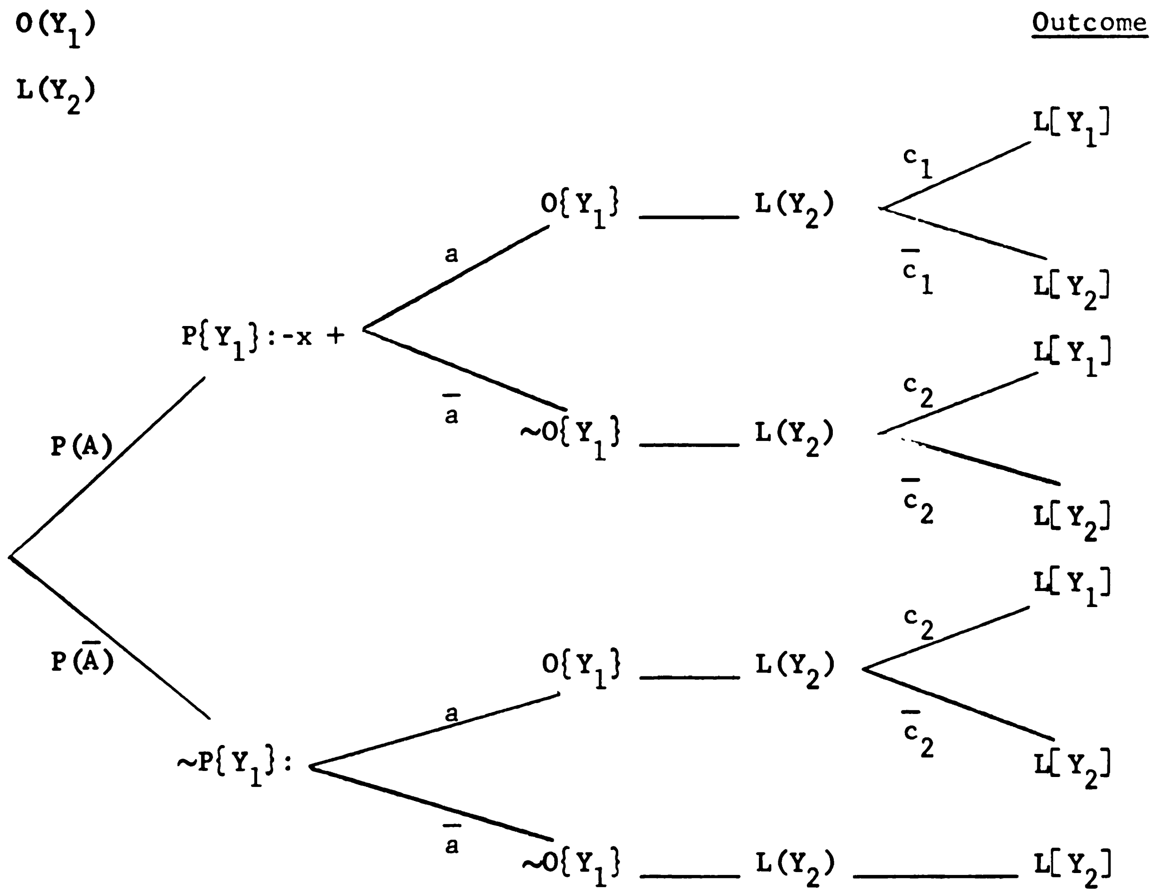
Figure 5: Utility structure: <u>ADVISORY GROUP: VERTICAL DISAGREEMENT</u> = <u>NO INFLUENCE</u>

ADVISORY GROUP: VERTICAL DISAGREEMENT - INFLUENCE

$P(Y_1)$

$O(Y_1)$

$L(Y_2)$



$G(A) = (ac_1 + \overline{a}c_2)Y_1 + (a\overline{c}_1 + \overline{ac}_2)Y_2$ $\qquad$ c = change

$G(\overline{A}) = (ac_2)Y_1 + (a\overline{c}_2 + \overline{a})Y_2 + x$ $\qquad$ $\overline{c}$ = not change

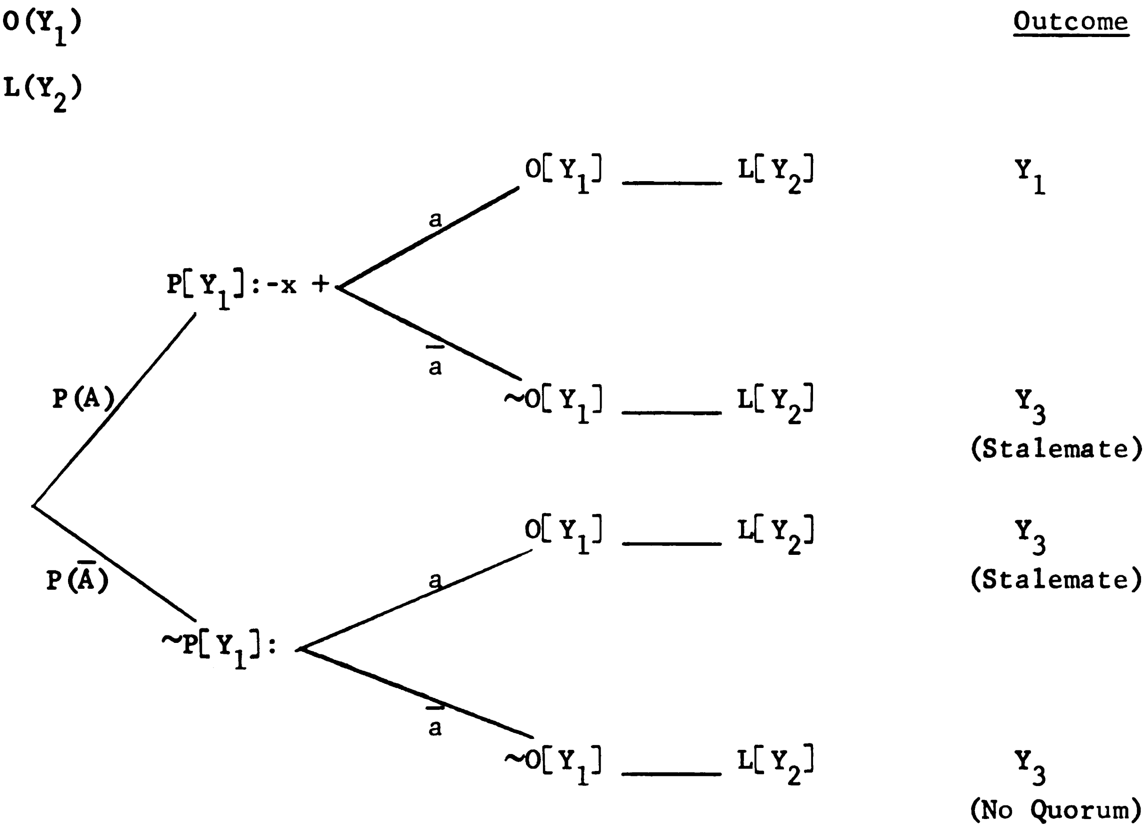
Figure 6: Utility structure: ADVISORY GROUP: VERTICAL DISAGREEMENT - INFLUENCE

COMMITTEE: VERTICAL DISAGREEMENT - NO INFLUENCE

$P(Y_1)$

$O(Y_1)$

$L(Y_2)$



$G(A) = aY_1$

$G(\bar{A}) = x$

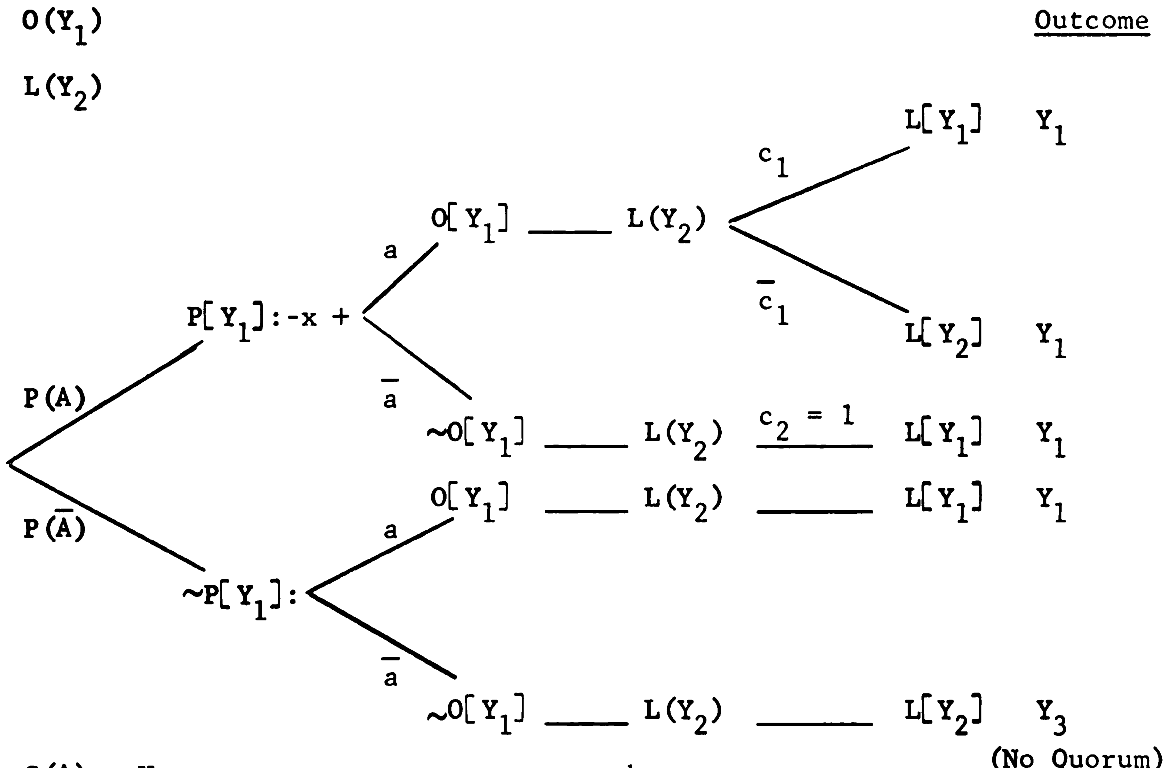
Figure 7: Utility structure: COMMITTEE: VERTICAL DISAGREEMENT - NO INFLUENCE

COMMITTEE: VERTICAL DISAGREEMENT - INFLUENCE

$P(Y_1)$

$O(Y_1)$

$L(Y_2)$



$G(A) = Y_1$ $\qquad$ c = change

$G(\bar{A}) = aY_1 + x$ $\qquad$ $\bar{c}$ = not change

Figure 8: Utility structure: <u>COMMITTEE</u>: <u>VERTICAL</u> <u>DISAGREEMENT</u> - <u>INFLUENCE</u>

Horizontal Disagreement, With and Without Influence

Consider the advisory group and the committee when they are characterized by the pattern of disagreement which Union Democracy deals with P and O consistently disagree with each other. Imagine that L has no such predictable preference pattern; sometimes he prefers Y_1 and sometimes Y_2.

As in the previous section, if influence is not permitted in the advisory group (p. 49), the outcomes are determined by the preference structure of the Leader. P and O's preferences and activity are irrelevant to securing more satisfactory outcomes, and the gain-loss formulation cannot be applied. However, if the leader is unbiased and influenceable (p. 50), then:

$$(5) \quad P(A) = \frac{G(A)}{G(A)+G(\bar{A})} = \frac{(p_2+\overline{ap}_2c_2)Y_1+(a\bar{p}_2+\overline{ap}_2\bar{c}_2)Y_2}{x+(ap_2\bar{c}_2+\bar{a}p_2)Y_1+(ap_2c_2+\bar{p}_2)Y_2+(p_2+\overline{ap}_2c_2)Y_1+(a\bar{p}_2+\overline{ap}_2\bar{c}_2)Y_2}$$

In the committee, neither the presence nor absence of influence leads to a determined outcome structure. If influence is not permitted so that L cannot prevent a stalemate (p. 51), then:

$$(6a) \quad P(A) = \frac{G(A)}{G(A) + G(\bar{A})} = \frac{p_2Y_1 + a\bar{p}_2Y_2}{x + a\bar{p}_2Y_2 + p_2Y_1 + a\bar{p}_2Y_2}$$

If L is unbiased in his preferences, $p_2 = 1/2$ and:

$$(6b) \quad P(A) = \frac{1/2\ (Y_1 + aY_2)}{X + 1/2Y_1 + aY_2}$$

If L can be influenced and if a non-preferred alternative is of more value to him than a stalemate (p. 52)

$$\text{(7a)} \quad P(A) = \frac{G(A)}{G(A) + G(\bar{A})}$$

$$= \frac{(p_2 + \bar{a}\,\bar{p}_2)Y_1 + a\,\bar{p}_2Y_2}{X + aY_2 + (p_2 + \bar{a}\,\bar{p}_2)Y_1 + a\,\bar{p}_2Y_2}$$

Equation (7a) can be expressed alternatively as follows in order to permit comparison with the no-influence situation, if $p_2 = 1/2$.

$$\text{(7b)} \quad P(A) = \frac{\left[\, 1/2(Y_1 + aY_2) \,\right] + 1/2\bar{a}Y_1}{\left[\, X + 1/2Y_1 + aY_2 \,\right] + 1/2(\bar{a}Y_1 + aY_2)}$$

The terms in brackets are the formula for participation in the committee under horizontal disagreement without influence (6a); the remaining terms indicate the effect of adding influence.

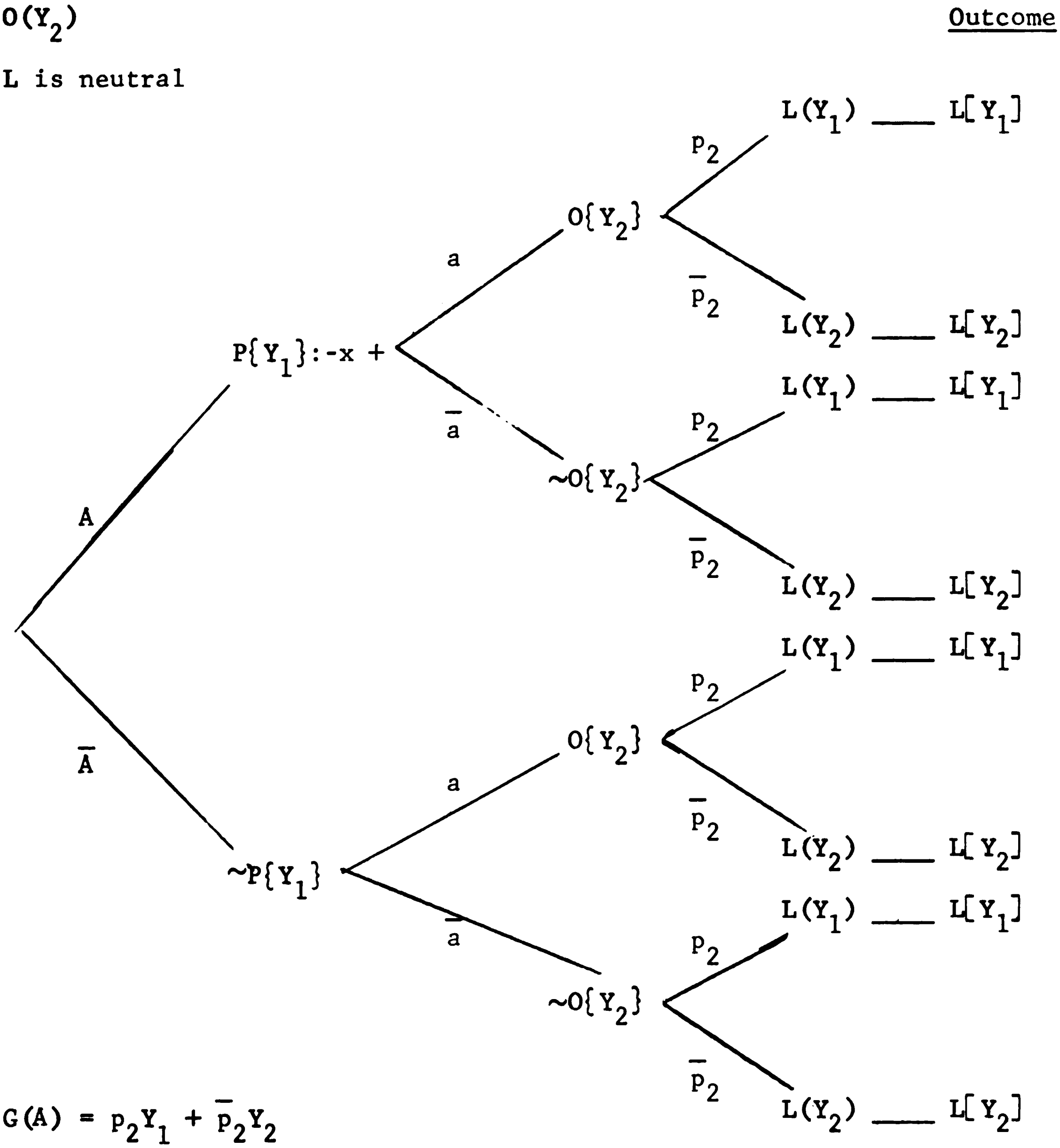
As in the vertical disagreement situations, comparisons between the committee and the advisory group are not straightforward.

ADVISORY GROUP: HORIZONTAL DISAGREEMENT - NO INFLUENCE

$P(Y_1)$

$O(Y_2)$

L is neutral



$G(A) = p_2Y_1 + \bar{p}_2Y_2$

$G(\bar{A}) = p_2Y_1 + \bar{p}_2Y_2 + x$

Figure 9: Utility structure: ADVISORY GROUP: HORIZONTAL DISAGREEMENT - NO INFLUENCE

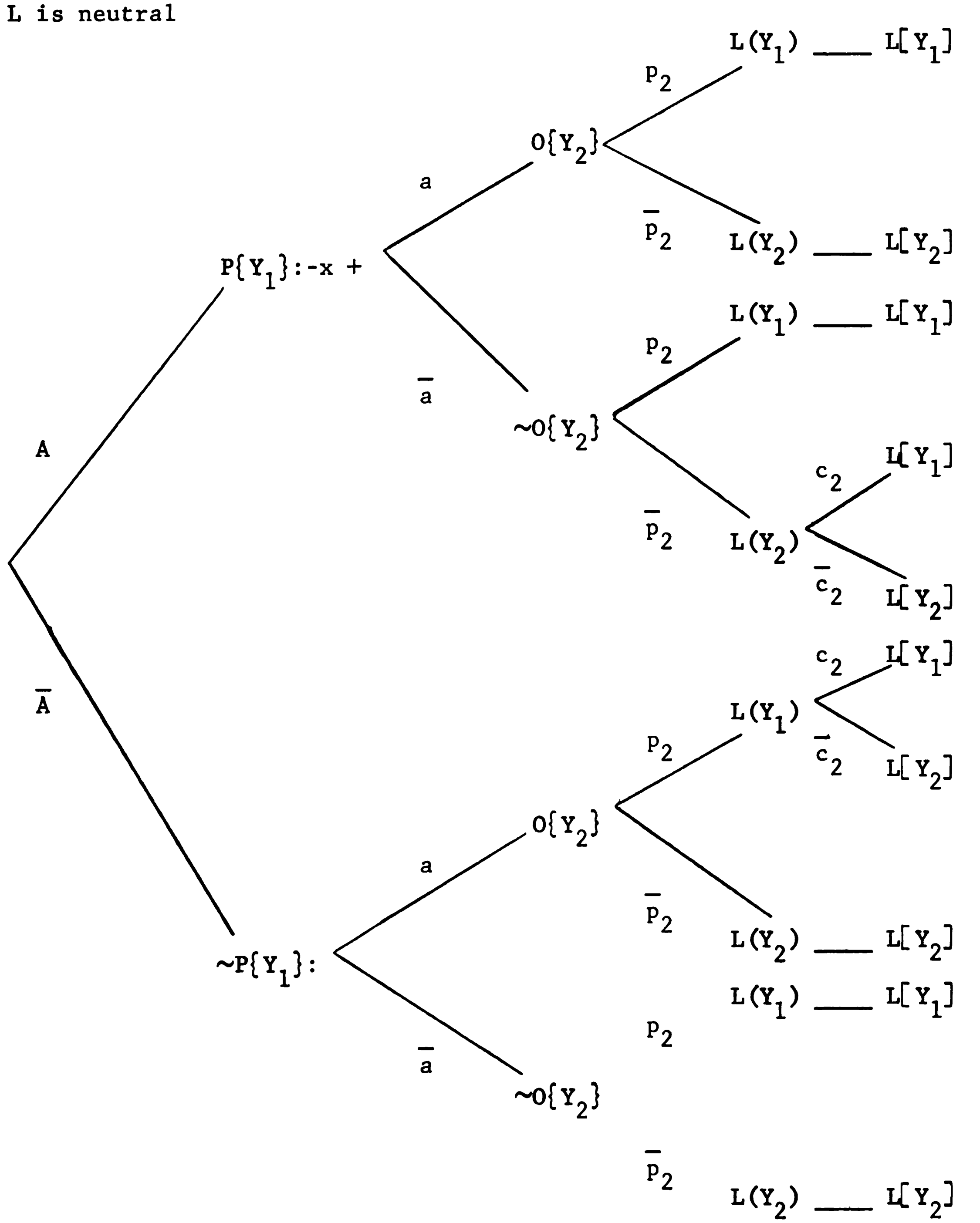
ADVISORY GROUP: HORIZONTAL DISAGREEMENT - INFLUENCE

$P(Y_1)$

$O(Y_2)$

Outcome

L is neutral



$G(A) = (p_2 + \overline{ap}_2c_2)Y_1 + (a\bar{p}_2 + \overline{ap}_2\bar{c}_2)Y_2$ c = change

$G(\bar{A}) = (ap_2c_2 + \bar{p}_2)Y_2 + (ap_2\bar{c}_2 + \bar{a}p_2)Y_1 + x$ $\bar{c}$ = not change

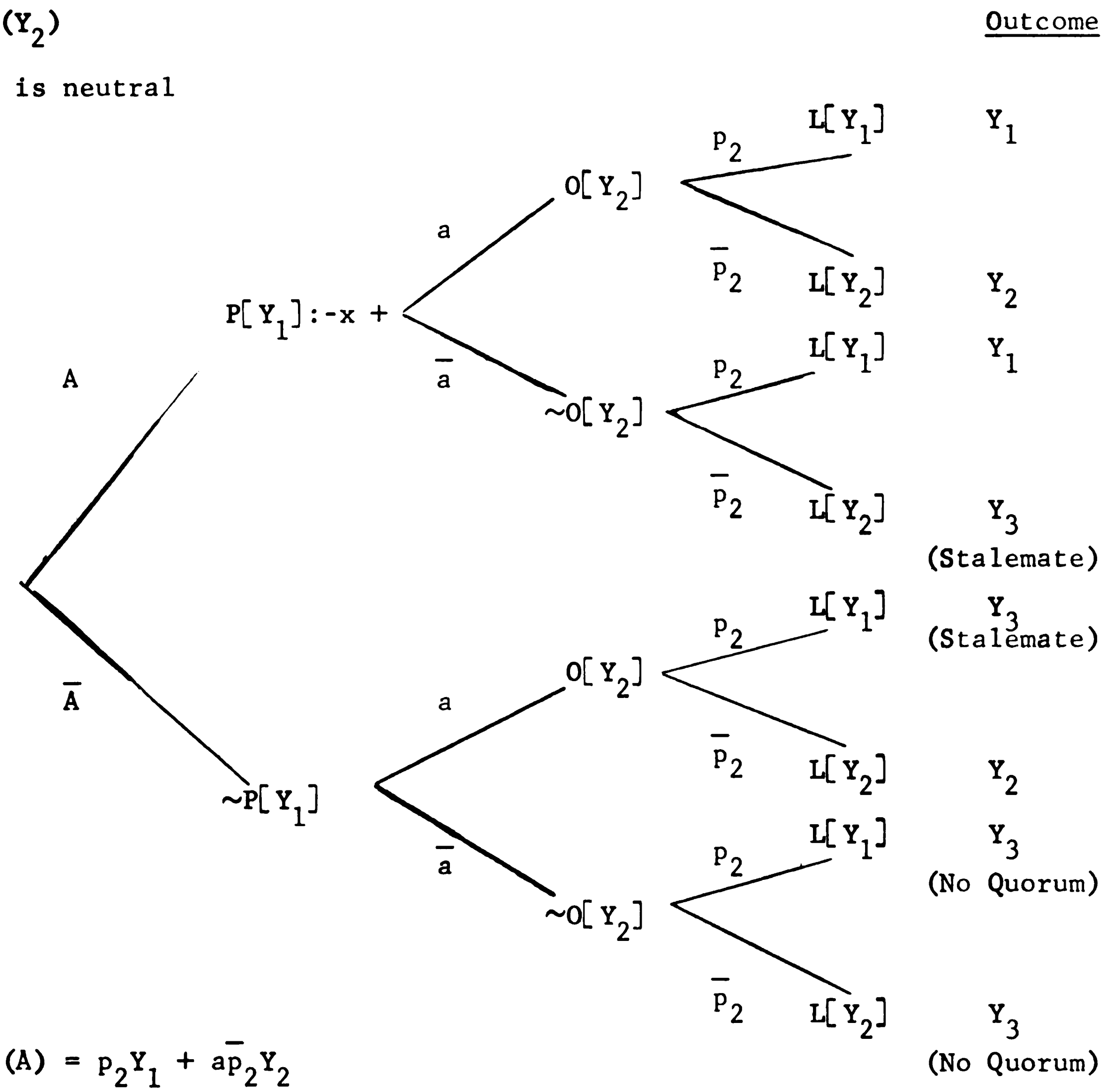
Figure 10: Utility structure: <u>ADVISORY GROUP</u>: <u>HORIZONTAL DISAGREEMENT-INFLUENCE</u>

COMMITTEE GROUP: HORIZONTAL DISAGREEMENT - NO INFLUENCE

$P(Y_1)$

$O(Y_2)$

L is neutral



$G(A) = p_2Y_1 + a\bar{p}_2Y_2$

$G(\bar{A}) = a\bar{p}_2Y_2 + x$

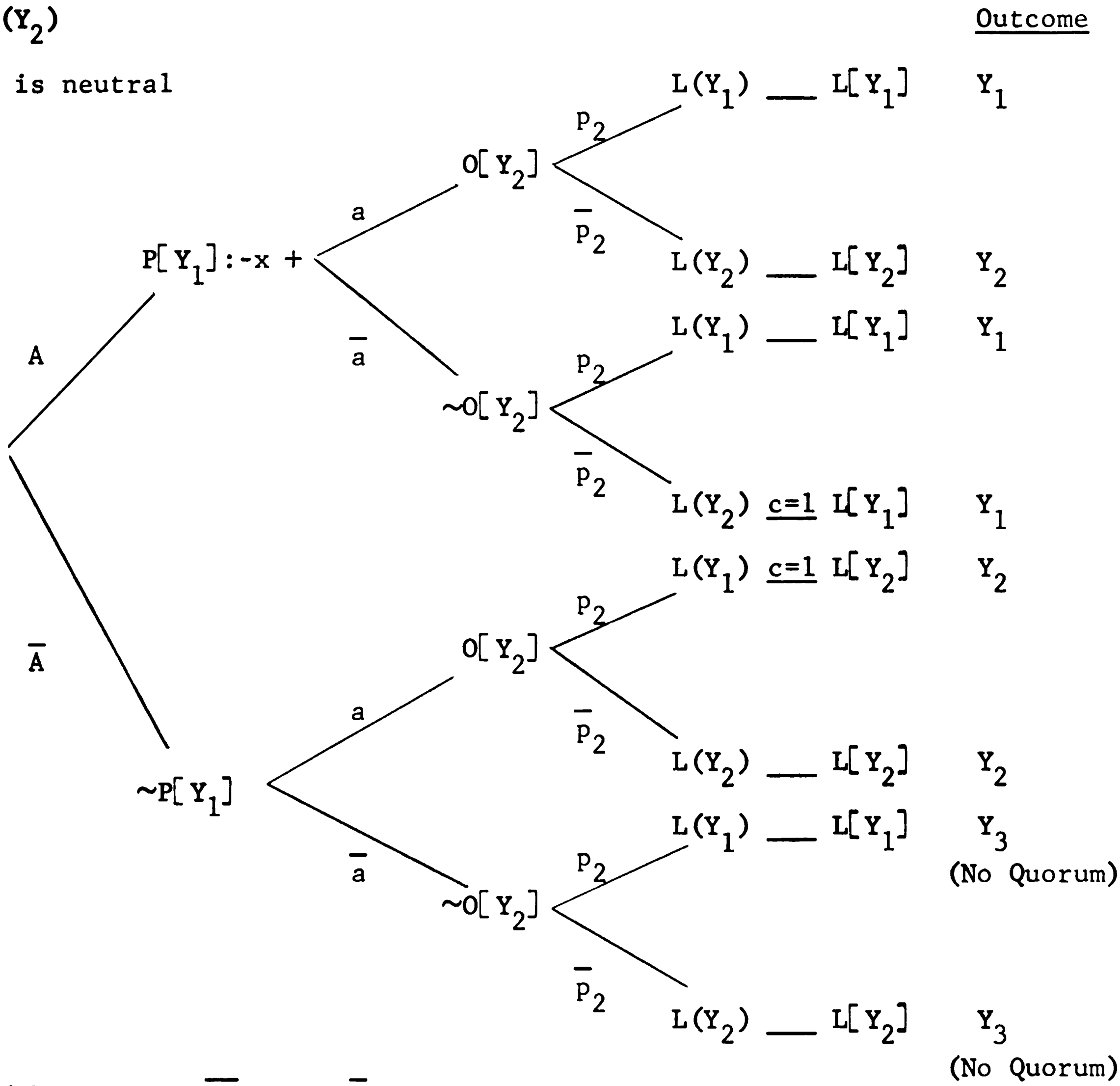
Figure 11: Utility structure: <u>COMMITTEE GROUP: HORIZONTAL DISAGREEMENT-NO INFLUENCE</u>

COMMITTEE GROUP: HORIZONTAL DISAGREEMENT - INFLUENCE

$P(Y_1)$

$O(Y_2)$

L is neutral



$G(A) = p_2Y_1 + \overline{ap}_2Y_1 + a\bar{p}_2Y_2$

c = change

$G(\bar{A}) = aY_2 + x$

Figure 12: Utility structure: <u>COMMITTEE GROUP: HORIZONTAL DISAGREEMENT - INFLUENCE</u>

Limiting the Focus

As I argued earlier[26], the main point of contention between Michels and Lipset is not the nature of the differences between centralized power distributions and flat ones. The important disagreement between them is the specification of the conditions which affect participation rates in flat authority systems. Although the advisory group situations are analytically important to the formulation, they do not speak directly to a resolution of this disagreement. For this reason, the research dealt exclusively with committee group situations. The aim of the research was to provide evidence as to whether or not certain situations previously specified for the committee do in fact generate predictable differences in participation rates among non-leaders.

Financial considerations did not permit testing the high consensus condition. That condition is defined by a high probability of the group's choosing the subject's preference without his having to participate. Since money was used to establish preference rankings, an experiment for this condition would be very expensive even with a relatively small sample. Each subject would have stood to gain maximum payoff most of the time. Dropping the consensus condition leaves the following committee situations under consideration: horizontal disagreement, with and without influence; and vertical disagreement, with and without influence. The tables on the next page specify what P can expect as final outcomes in each of those conditions, depending upon O's activity and L's final vote.

---

[26] See p. 12 and pp. 21-22.

Vertical Disagreement*

No Influence

P \ O	A	$\bar{A}$
A	$u_1(Y_1)$ -x	-x
$\bar{A}$	0	0

$u_1(Y_1) > u_2(Y_2)$

*see p. 45

Figure 13: Pay-off Expectation Structure: Vertical Disagreement - No Influence

Horizontal Disagreement*

No Influence

P \ O	A		$\bar{A}$	
	P_2	$\bar{P}_2$	P_2	$\bar{P}$
A	$u_1(Y_1)$ -x	$u_2(Y_2)$ -x	$u_1(Y_1)$ -x	-x
$\bar{A}$	0	Y_2	0	0

$u_1(Y_1) > u_2(Y_2)$

*see p. 51

Figure 14: Pay-off Expectation Structure: Horizontal Disagreement - No Influence

Vertical Disagreement*

Influence

P \ O	A	$\bar{A}$
A	$u_1(Y_1)$ -x	$u_1(Y_1)$ -x
$\bar{A}$	$u_1(Y_1)$	0

$u_1(Y_1) > u_2(Y_2)$

*see p. 46

Figure 15: Pay-off Expectation Structure: Vertical Disagreement - Influence

Horizontal Disagreement*

Influence

P \ O	A		$\bar{A}$	
	P_2	$\bar{P}_2$	P_2	$\bar{P}_2$
A	$u_1(Y_1)$ -x	$u_2(Y_2)$ -x	$u_1(Y_1)$ -x	$u_1(Y_1)$ -x
$\bar{A}$	$u_2(Y_2)$	$u_2(Y_2)$	0	0

$u_1(Y_1) > u_2(Y_2)$

*see p. 52

Figure 16: Pay-off Expectation Structure: Horizontal Disagreement - Influence

All these situations involve both risk and uncertainty for P. In no situation is A or $\bar{A}$ (participating or not participating) a dominating preference for P. Neither course of action can be counted upon to provide P his preferred outcome under all forms of O and L's behavior. The model predicts different rates of participation for each situation.

The research entailed constructing experimental analogues to two of the four situations specified in the tables. Hypothetical values for the relevant parameters suggested that changes in disagreement patterns lead to a greater change in participation rates than does adding influence of the kind outlined. Since my financial situation precluded a sample size large enough to discriminate between very small expected differences, the two non-influence situations were selected for study.

For each of the two disagreement patterns, two experiments were conducted: one in which O is very active and one in which O is very inactive. The four experimental situations are represented in the table below. The number in each cell indicates the rank order position of the model's prediction for the P(A): 1 indicates the highest expected rate of participation and 4 the lowest. These rank orders are based on hypothetical parameter values. Rates ranked 2 and 3 should be very close to each other (within .05). The difference between rates ranked 1 and 2, however, should be considerably larger as should the differences between 3 and 4.

	Vertical Disagreement	Horizontal Disagreement
Active Other	1	2
Inactive Other	4	3

Figure 17: Predicted Rank Ordering of Participation Rates.

With the sample size I could afford, I did not expect to be able to statistically distinguish between cells ranked 2 and 3 nor to statistically differentiate between small differences in observed and predicted rates for any of the cells. Because of this, I believed this particular set of experiments to be a good selection. In addition to speaking directly to the disagreement between Michels and Lipset, they should also have generated a distinctive rank-order pattern which would not depend heavily upon fine statistical discrimination for interpretation.

In order to test the model's predictions, it is essential that:

a) all groups in each condition have flat power distributions which the subjects are not free to alter;
b) collective goods be provided for each group decision;
c) participation entail cost to the subject; and
d) the subject have identifiable expectations concerning the preferences and participation patterns of the other members in his group.

The experimental procedure which is described in the following chapter represents an attempt to devise as simple and inexpensive an experiment as possible and still meet these conditions.

CHAPTER IV

EXPERIMENTAL PROCEDURE AND PRETEST INFORMATION

Experimental Procedure

All subjects were volunteers recruited from classes at Michigan State University. They were guaranteed $1.50 for a brief visit to the study center and were told that they would receive an opportunity to earn considerably more. It was not until their arrival at the laboratory that they learned that this opportunity involved repeated participation. Thus, the subjects did not originally volunteer for what they knew to be a long-term study.

When a subject arrived he was told that, in volunteering for the study, he had become a member of a very simple and rudimentary group which, in addition to himself, included a leader and one other non-leader. His group was to hold a series of meetings which he was free to attend or not attend as he chose. Each meeting was to consist in the subject's coming to the laboratory and voting for his particular preference on a decision relevant to his group. Each decision would have two alternatives. One of the alternatives would be the subject's preference; the other alternative was the preference of some other member in the group. Each time the group chose the subject's preference, he would receive $1.00. Each time the group chose the other alternative, the subject would receive only $.25. Only if the group failed to arrive at any decision would he receive nothing.

The subject was informed that he would receive the money whether or not he came to the meeting to vote, provided the other group members were able to arrive at a decision. If he chose not to attend a meeting, he would find a report about its results in his mail box the following day. Any money to which he was entitled would be enclosed with that report.

It was explained to the subject that the study was concerned with understanding "...when people will voluntarily choose to participate in a group to which they belong." It was emphasized that he could come or not come to any meeting as he chose. Similarly, the other non-leader in his group did not <u>have</u> to attend any meeting. However, the leader would attend every meeting and would always vote.

It was then explained how decisions would be made:

> Each member of your group will have one vote. However, your group has a quorum rule for arriving at decisions. If the leader is the only one to come to the meeting, no decision can be made. **AT LEAST TWO MEMBERS OF YOUR GROUP MUST BE PRESENT TO VOTE BEFORE A DECISION CAN BE MADE.** If no decision is made, you receive nothing.
>
> There is another way your group can fail to arrive at a decision--by a stalemate. If only two members of your group vote and they do not agree, your group is stalemated--no decision has been made for that particular meeting. You receive nothing whenever your group is stalemated.

Subjects in all four experimental conditions, then, belonged to groups which had a flat power distribution. Decisions were made by a one-man-one-vote system; any two agreeing votes determined the outcome; in the absence of a quorum, the leader's vote was not binding; and the leader did not have veto power. In addition, influence was not permitted in any of the experimental conditions. No member could change his vote to avoid a stalemate. Each member always voted for his preference.

At this point, we introduced the manipulation which we hoped would provide us with the four experimental conditions which were of interest.

Condition A: Horizontal Disagreement, Active Other

In order to provide the subject with appropriate expectations about the behavior of the other members of his group, he was told:

> Now let me give you some details about the other members of your group. In this study we are interested in understanding groups in which the members do not always agree on what is the best alternative. Consequently, we are arranging it so that the other non-leader in your group will always disagree with you if and when he votes. ... But he will not always vote. He will only vote 3/4ths of the time. ...In order to bring this about, we have arranged the following device. Look at this basket. In it we will put 3 black marbles and 1 yellow one. At every meeting, whether or not you are there, we will draw a marble from this basket. If the marble is black, it means that the other member of your group came to the meeting and voted against you. ...If the marble is yellow, it means that he did not come to the meeting. ...Your coming to the meeting is automatically counted as a vote for your preference. Do you understand?
>
> You will also want to know something about your leader. We are interested in studying groups which have a fair and neutral leader. Therefore, we will arrange it so that your leader will agree with you about half the time on what is the best alternative for the group. ...The other half,he will agree with the other member of your group. ...To ensure that you can count on this neutrality, we have a second basket. In this basket, we will put one white marble and one black one. At every meeting, whether or not you attend, we will draw one marble from this basket. If the marble is white, it means that the leader agreed with you. ...If it is black, it means that he disagreed with you and voted with the other member of your group. He will always be there and he will always vote. Do you understand?

Condition B: Horizontal Disagreement: Inactive Other

The manipulation for subjects belonging to groups in this condition was identical to that for Condition A except that the other group member could be expected to attend only 1/4th of the meetings. Consequently, 3 yellow marbles and 1 black one were placed in the basket marked "Other Group Member."

Condition 1: Vertical Disagreement: Active Other

In order to provide the subjects with expectations which would minimally represent that disagreement pattern discussed by Michels, the following explanation was given:

> In this study we are interested in understanding groups in which the members do not always agree on what is the best alternative. In particular, we are interested in groups in which the leader often disagrees with the other members of the group. Consequently, we are arranging it so that the leader of your group will always disagree with you. ...Your leader will attend every meeting. He will ALWAYS vote, and he will always vote for his preference. Your coming to a meeting is automatically counted as a vote for your preference. Do you understand?
>
> You will also want to know something about the other member of your group. Since we are interested in groups in which the leader disagrees with the other group members, the third member of your group will have the same preference as you do. ...He will vote for that preference if and when he votes, just as you will. But, like you, he does not HAVE to vote. He will not attend every meeting. He will attend 3/4ths of the time. In order to bring this about, we have arranged the following device. Look at this basket. In it we will put 3 white marbles and 1 yellow one. At every meeting, whether or not you attend, we will draw one marble from this basket. If the marble is white, it means that the other member in your group came to the meeting and voted for your preference and his. If the marble drawn is yellow, it means that the other member ...did not attend that particular meeting. ... Do you understand?

Condition 2: Vertical Disagreement: Inactive Other

The manipulation for subjects belonging to groups in this condition was identical to that for Condition 1 except that the other group member could be expected to attend only 1/4th of the meetings. Consequently, 3 yellow marbles and 1 white one were placed in the basket marked "Other Group Member."

After this manipulation, the subject participated in five practice meetings so that he would know what to expect if he attended a meeting and an additional five practice meetings to familiarize him with what could be expected if he did not attend. After the practice meetings, the subject was paid the $1.50 we had promised and he was given a notice of the times and places of future meetings.

Discussion

For all subjects, then, the cost of participating was the subjective value of the effort (u(E)) in coming to the laboratory to cast his vote. The rewards were the subjective utilities associated with the financial payoff for each decisional alternative (u(1.00); u(.25)). Expectations about the participation rates and preference patterns of the other group members were set by the manipulations involving the marbles. We can now specify the theoretical trees for what a subject in each of the four conditions can expect to happen at any given meeting.[27]

---

[27] The notation for these trees is the same as used in previous chapters. See key on pp x-xi.

CONDITION A: HORIZONTAL DISAGREEMENT - ACTIVE OTHER

P(A)

O(B)

L is neutral

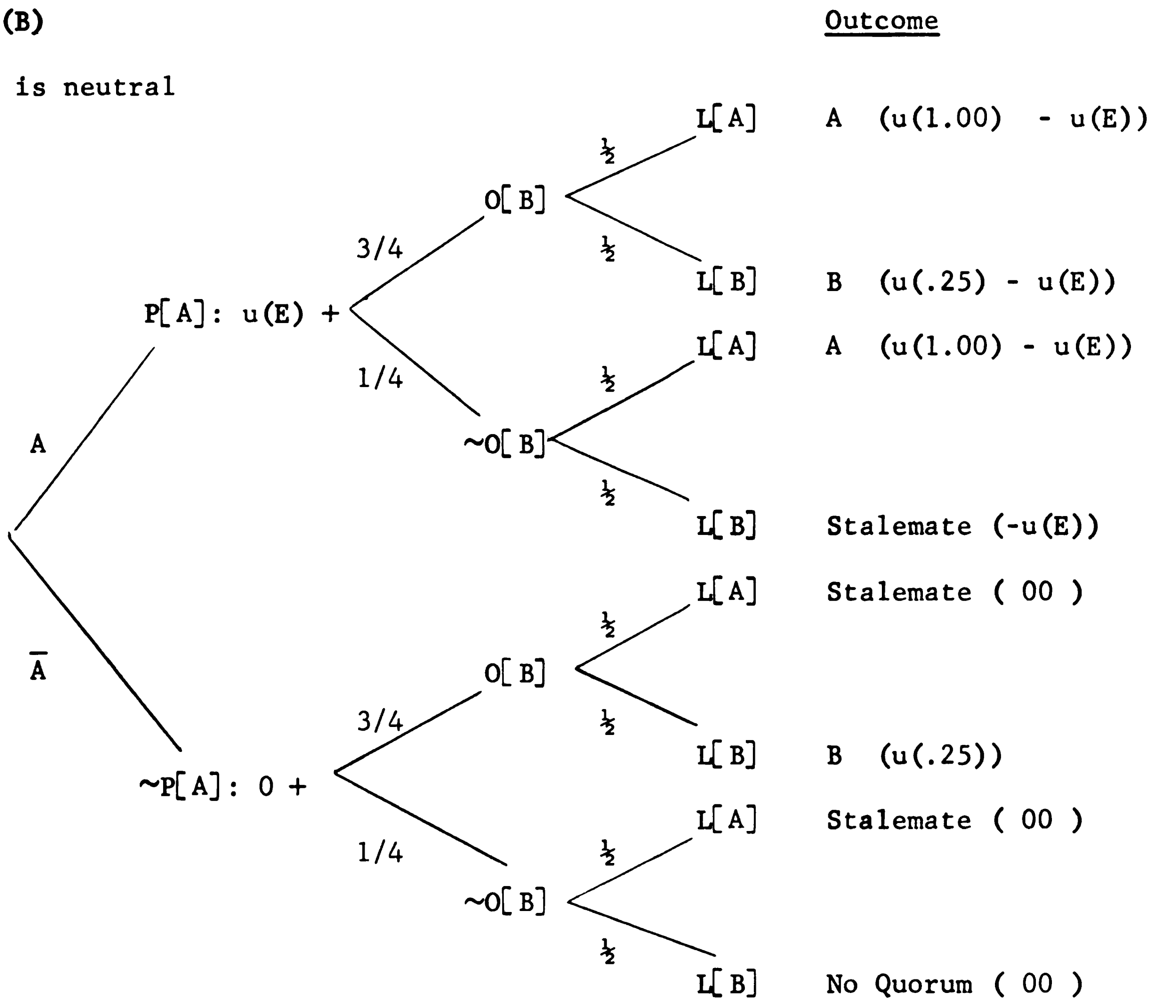


Figure 18: Specified utility structure: CONDITION A: HORIZONTAL DISAGREEMENT - ACTIVE OTHER

CONDITION B: HORIZONTAL DISAGREEMENT - INACTIVE OTHER

P(B)

O(A)

Outcome

L is neutral

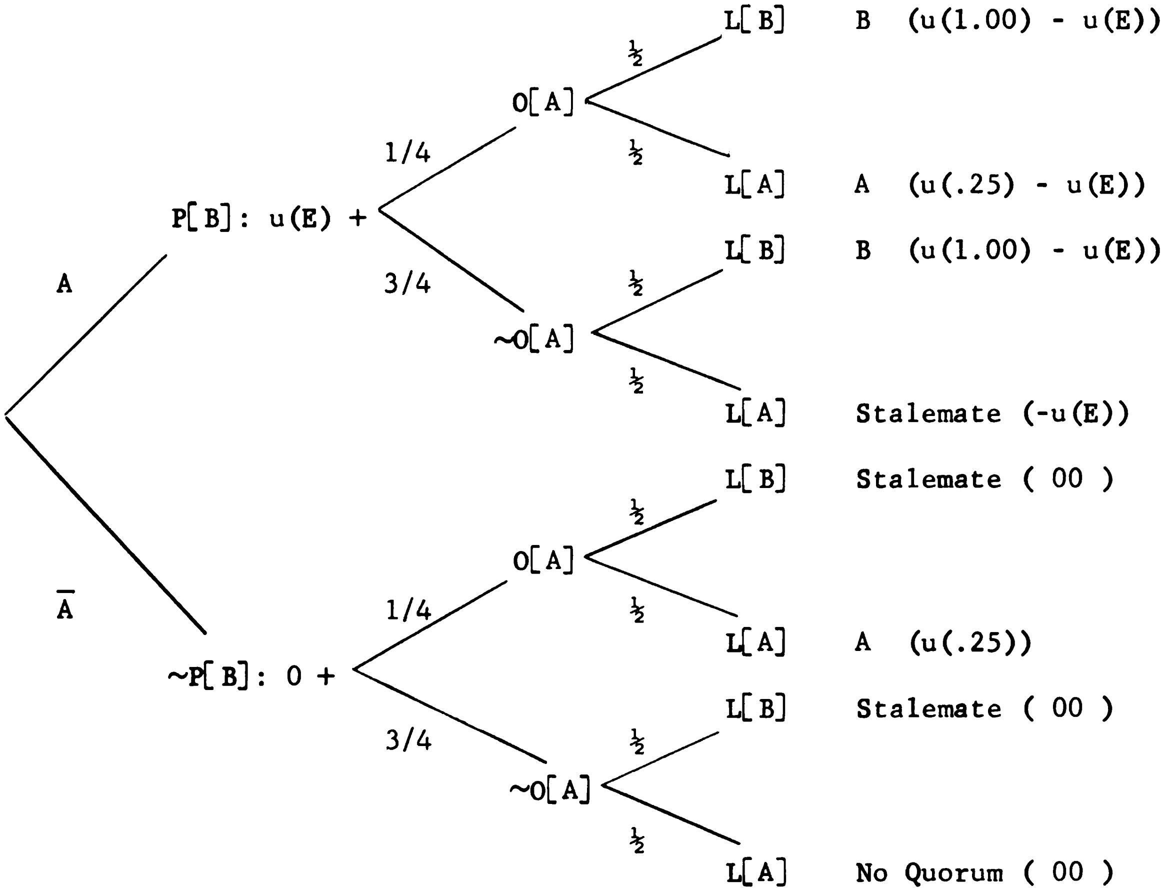


Figure 19: Specified utility structure: CONDITION B: HORIZONTAL DISAGREEMENT - INACTIVE OTHER

CONDITION 1: VERTICAL DISAGREEMENT - ACTIVE OTHER

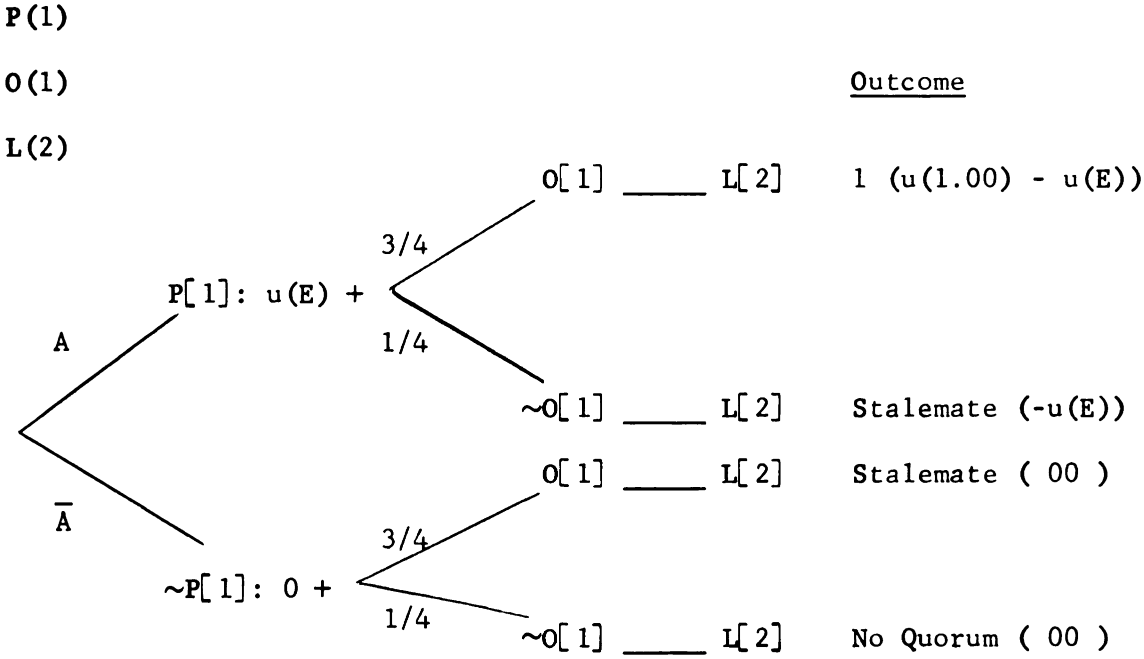


Figure 20: Specified utility structure: **CONDITION 1: VERTICAL DISAGREEMENT - ACTIVE OTHER**

CONDITION 2: VERTICAL DISAGREEMENT - INACTIVE OTHER

P(2)

O(2)

L(1)

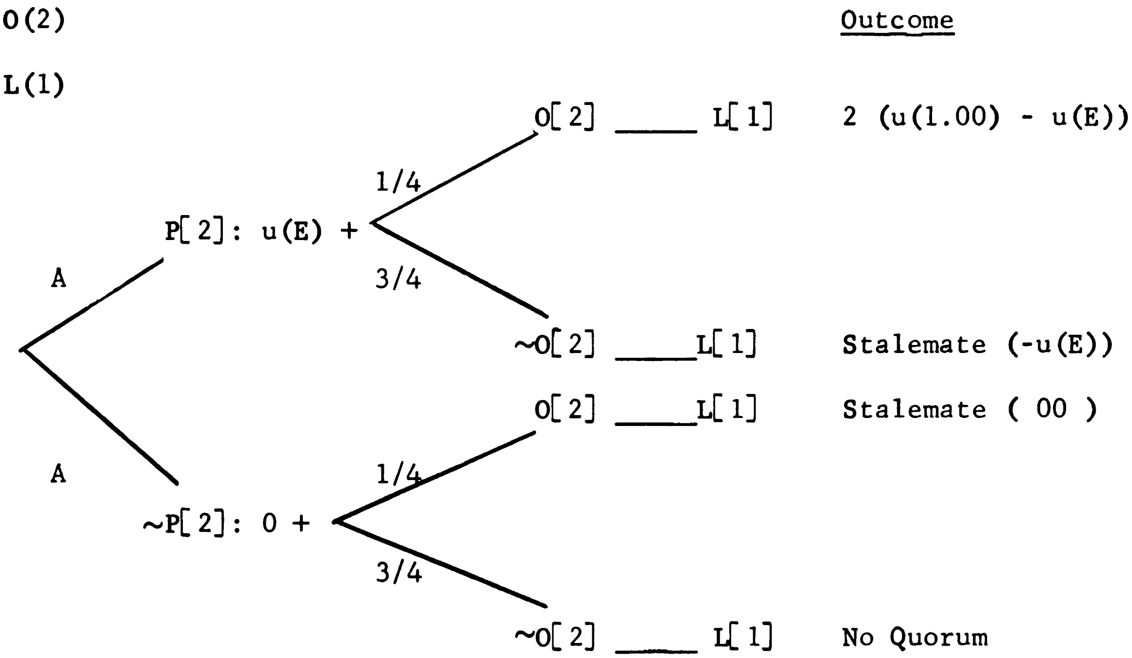


Figure 21: Specified utility structure: CONDITION 2: VERTICAL DISAGREEMENT - INACTIVE OTHER

Using the parameter values in the trees, we can specify the equations for the probability of participation, P(A), by subjects in each of the four conditions.

Condition A: Horizontal Disagreement, Active Other:

$$P(A) = \frac{1/2\ [u(1.00)] + 3/8\ [u(.25)]}{1/2\ [u(1.00)] + 3/8\ [u(.25)] + 3/8\ [u(.25)] + u(E)}$$

Condition B: Horizontal Disagreement, Inactive Other:

$$P(A) = \frac{1/2\ [u(1.00)] + 1/8\ [u(.25)]}{1/2\ [u(1.00)] + 1/8\ [u(.25)] + 1/8\ [u(.25)] + u(E)}$$

Condition 1: Vertical Disagreement, Active Other:

$$P(A) = \frac{3/4\ [u(1.00)]}{3/4\ [u(1.00)] + u(E)}$$

Condition 2: Vertical Disagreement, Inactive Other:

$$P(A) = \frac{1/4\ [u(1.00)]}{1/4\ [u(1.00)] + u(E)}$$

The decision to use 3-person groups in the experiment was made for several reasons. Financial considerations precluded the use of large groups, since they would permit the subject's receiving maximum pay-off without participation. In addition, it was not conceptually clear that any additional information would have been gotten from an experiment using larger groups, given that a) influence was not permitted, and that b) I do not know at this time how the individual aggregates expectations in large groups. I have argued that in small groups the individual has expectations about <u>each</u> other group member. Presumably, at some unknown point the size of the group becomes too large for such an individualized process. Rather than estimating how likely each member in the group is to come and how likely each is to vote with or against him, the individual must now estimate how _many_ people in the group are likely to come and of those, how many are likely to vote with or against him. Experiments with large groups might have told us something about this process, but it was not clear that they would speak as directly or clearly to the major problem between Michels and Lipset nor that they would be the best way to evaluate the problem.

One final issue warrants discussion here--my decision to have each subject participate in a series of meetings. The same experiment could have been executed using a larger sample and having each subject participate in only one meeting. However, since the initial briefing session is both the most expensive and the most time-consuming aspect of the experimental procedure, I decided against the larger sample. What must be understood is that I was _not_ attempting to simulate the typical participation sequence of an individual who is a member of a labor union, for example. Ordinarily, that sequence would involve changes in costs of participation and in decisional alternatives between any two meetings. The procedures used in the experiments represent an effort to keep these constant. In addition, the model suggests that in the usual organization, an individual's expectations about the other group members are developed and changed over time. That is, the process I am studying is ordinarily sequentially dependent due to the effects of the outcome of any given meeting upon a member's expectations for the future. In this research, the purpose of the manipulations with the marbles in the initial briefing session was to provide the subjects with an already developed, stable set of expectations. I was not interested in studying expectation changes over trials. Since the model does not imply any other form of dependency between trials, the process observed in these experiments was assumed to be a sequence of independent trials.

The Pretest

The pretest was conducted in the fashion just described. Subjects were male and female students recruited in basic university college classes. Each group held a series of 5 meetings. Each meeting entailed the subject's coming to the laboratory any time between 7 and 8:30 in the evening beginning on a Monday and ending on a Friday. When he arrived, the subject entered immediately, cast his vote for his preference and drew the marbles representing the other group members' activity. If he was entitled to any money, he was paid in cash immediately. The entire process took approximately one minute of the subject's time.

If a subject had not shown at the end of the appointed time, the experimenters drew the marbles for the other members in his group, recorded that the subject had not voted, and filled out a report on the outcome. This report, along with any money due him, was delivered to the subject's mail box the following morning before regular mail delivery. All subjects resided on campus.

Participation rates for each condition were computed in the following fashion:[28]

$$\text{Obs. } P(A) = \frac{\text{Total instances of participation}}{\text{No. of Ss in the Condition X No. of Meetings}}$$

---

[28] See Appendix B, Part 1, for the raw data.

The observed participation rate for Condition 2 (Vertical Disagreement, Inactive Other) was used to solve for the ratio $\frac{u(1.00)}{u(E)}$. The solution (1.7) was then used to predict the theoretical rates of participation for the other three groups.[29] For Conditions A and B, the assumption was made that $\frac{u(1.00)}{u(E)} = 4\,\frac{u(.25)}{u(E)}$. The following table lists the predicted and observed participation rates for the pretest groups.

Table 1

Pretest Results

CONDITION	OBSERVED RATES	PREDICTED RATES
1: Horizontal Disagreement; Active Other	.93 (23/25)	.56
A: Vertical Disagreement; Active Other	.45 (9/20)	.47
B: Vertical Disagreement; Inactive Other	.44 (11/25)	.46
2: Horizontal Disagreement; Inactive Other	.30 (6/20)	XX

These data and individual interviews with all subjects were used to make a provisional evaluation of the research design. Clearly, the observed participation rate for Condition 1 (Horizontal Disagreement; Active Other) is widely disparate from what the model predicts. However, it was discovered in the interviews that four of the five subjects in this condition formed a car pool and established a reminder system immediately after the initial briefing session. They came to

[29] See Appendix B, Part II, for a full presentation of the algebra.

the laboratory every evening together. Two of the four were females who lived in the same dormitory. The other two were males and both resided in the hall adjacent to the one in which the two girls lived. Subjects in the other conditions did not have such contiguous residence patterns and did not come together to the study. There was, however, an overall tendency for the males to offer any female present a ride back to her dorm. On the basis of this, I decided to have all subjects in the final study be of the same sex. Since the study was to be conducted in the evening, I decided to recruit males only.

That decision means I interpreted the high participation of subjects in condition 1 to be a result of a methodological error. The ease of transportation, the elaborate reminder system, and the social benefits accompanying participation for any of these four subjects was believed to have the effect of reducing the effort (cost) in participation. That is, $\frac{u(1.00)}{u(E)}$ for these subjects was believed to be greater than for the other subjects in the study. The expectation was that the participation rate for subjects in condition 1 would better fit the theoretical predictions if care were taken to ensure greater residential dispersion among the participants and if only males were recruited.

The rest of the participation data suggested that the design was otherwise adequate. In spite of the very small sample size, the rank order of the participation rates is consistent with the model. In addition, the differences between rates in the various conditions were encouraging. Due to the very small sample, the close fit between the predicted and observed rates for conditions A and B was seen as promising evidence.

The interview information also indicated that the design was adequate except for previously mentioned changes. The subjects did not indicate that they felt "pressured" or "obliged" to come to the meetings, and they seemed to believe that we were being honest in our drawing of the marbles for those meetings which they did not attend. Detailed questioning revealed that at the end of the pretest, all subjects (even regular non-attenders) could remember the details of how decisions were made in their group and could describe the voting preferences and participation patterns of the hypothetical members of their group.

In light of all this, I chose to leave the design as previously described, with the following modifications: the subjects in the full study were all males; all of them lived in dormitories on campus and care was taken to produce maximum possible residential dispersion within experimental conditions; meetings were held each Monday and Thursday evening for a series of 13 meetings following the initial briefing session. 25 subjects were recruited for each condition in the hope that we would get 20 usable subjects for each of the four conditions.

CHAPTER V

RESULTS AND INTERPRETATION

Results and Interpretation

The study was conducted in spring, 1970. Originally, each subject was to have an opportunity to participate in 10 meetings (trials). However, on the day preceding the 7th trial, a campus-wide strike began which continued throughout the rest of the trials, although with apparently decreasing support. Since there was no a priori way to know what the effect of the strike would be on the study, I decided to continue running the experiment and to add as many trials as was possible before the end of the term. I hoped to find some after-the-fact way of deciding which trials could be used in analysis; the extra trials added toward the end of the term were expected to be less influenced by the strike. In all, 13 trials were conducted; and in the end, only trial 7 was deleted from analysis. (That trial is, however, included in the report of the raw data in Appendix C, part I). Comments by subjects indicated that some were not certain that our study would be held on the night of the 7th meeting, that others were afraid to go out on campus that particular evening, and that the cost of participating that night generally could not be viewed as at all comparable to that involved in the other 12 trials. Since there was no unusual subject reaction to any of the other meetings, all of the remaining twelve trials were used in analysis. Actual sample sizes were as follows:

Condition 1:	Horizontal Disagreement; Active Other	N = 21
Condition A:	Vertical Disagreement; Active Other	N = 21
Condition B:	Vertical Disagreement; Inactive Other	N = 23
Condition 2:	Horizontal Disagreement; Inactive Other	N = 19

The first of the following graphs displays the participation rates per trial for each experimental condition. Clearly there was a general decline in participation over trials for all four conditions. Substantive interpretation of this finding is problematical since the decline does not appear to be a simple, gradual function of time. The next two figures present the participation rates separately for the Monday night trials and the Thursday night trials respectively. The decline is more pronounced for the Thursday trials, but, again, interpretation is not straightforward. The last two Thursday trials suggest that a "leveling off" point may have been reached; if so, it is at a substantially lower rate than for the last two Monday trials.

In spite of the rather large amount of fluctuation reflected in the graphs, the predicted rank orderings of the rates is remarkably stable for all three graphs. However, the model suggests that there should be greater overlap between rates A and B while there should be less overlap than was observed between rates B and 2. These latter should have been more clearly differentiated from each other. The rates for condition A appear to be the most stable over trials. While the graphs indicate fairly large fluctuation from trial to trial, it is not unpatterned. In general, when there is a noticeable rise or decline in participation for any one group, there is a similar rise or decline for the other three groups.

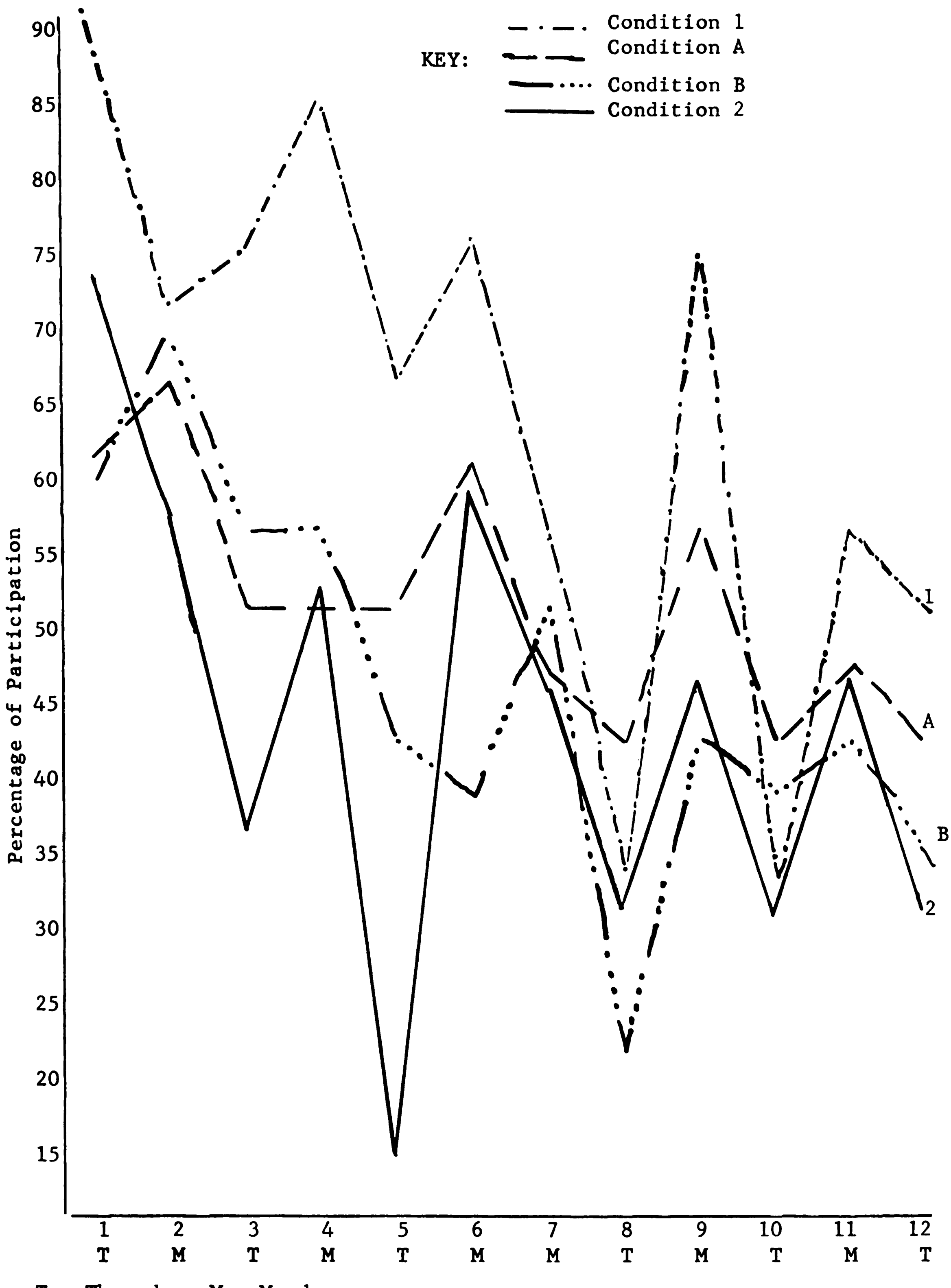


Figure 22: Participation rates by trial and experimental condition:
ALL TRIALS

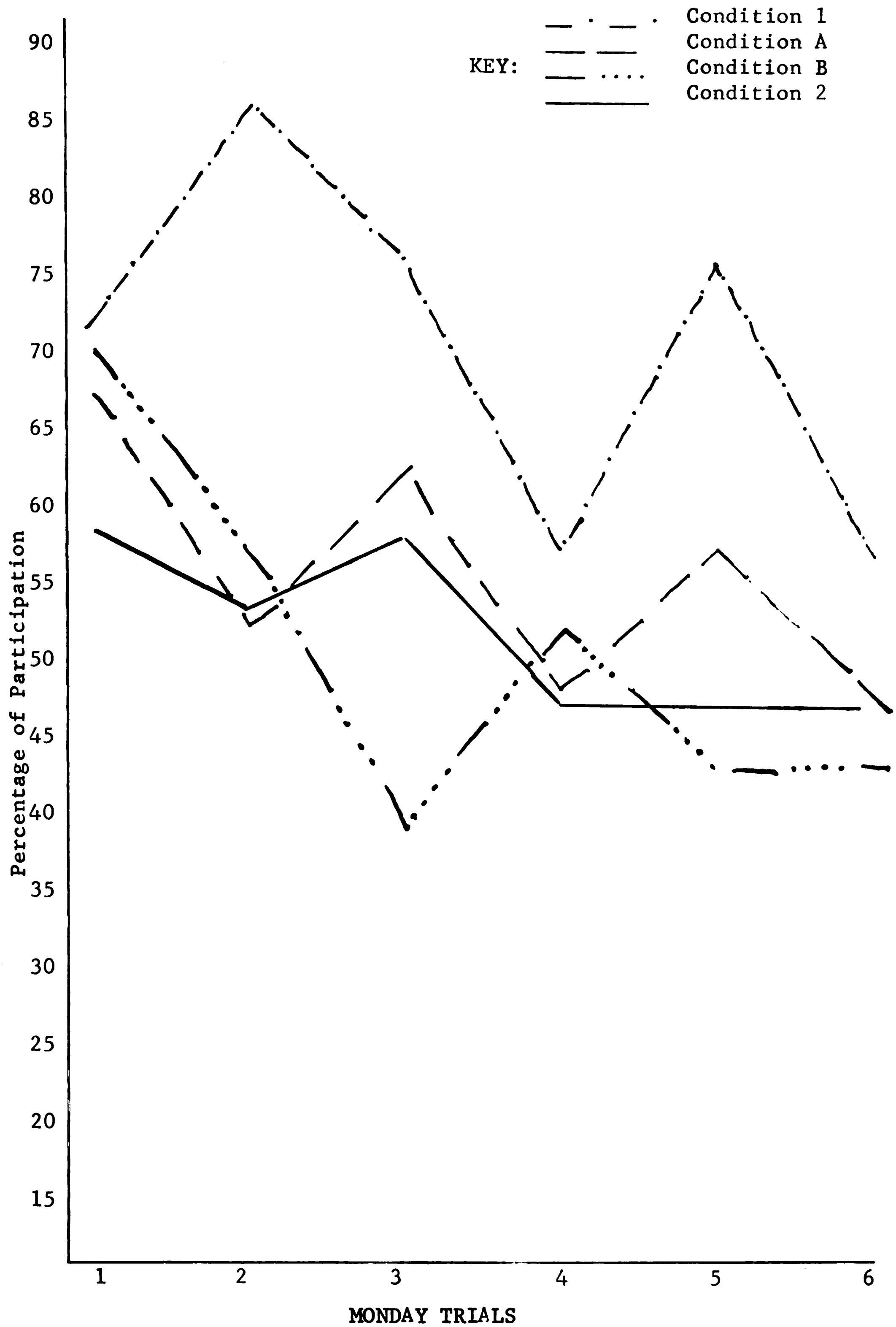


Figure 23: Participation rates by trial and experimental condition: MONDAY TRIALS ONLY

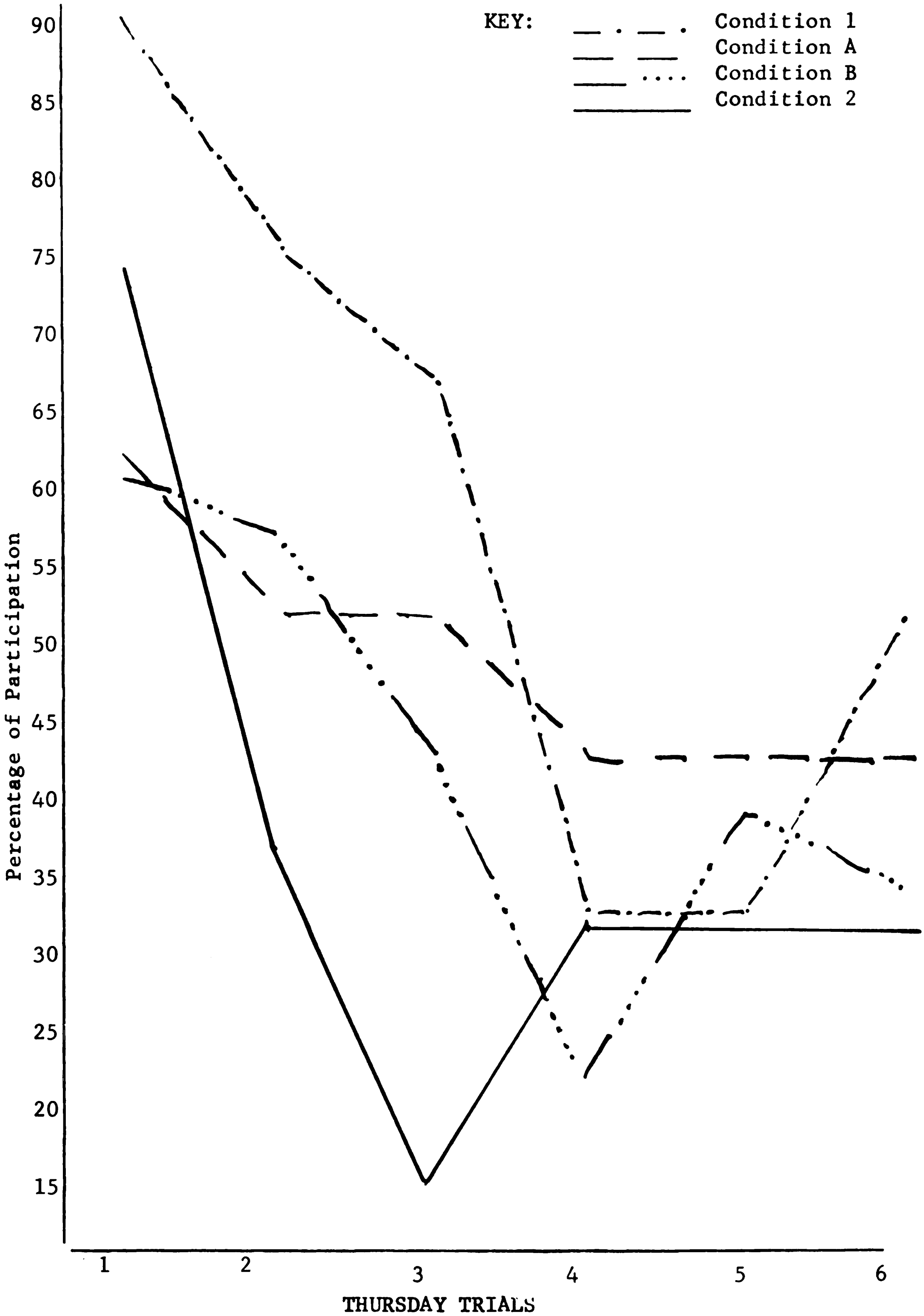


Figure 24: Participation rates by trial and experimental condition: THURSDAY TRIALS ONLY

To determine the degree of fit between the model's predictions and the observed rates of participation, a slightly different procedure from the one used in analyzing the pretest data was employed to estimate the ratio $\frac{u(1.00)}{u(E)}$. In this study, the appropriate equation for each one of the four experimental situations is as valid an estimator for that ratio as any of the others.[30] When there are several equivalent estimators of this sort, it is usual to employ some average of them all. Therefore, each of the four equations was solved separately for the utility of a dollar divided by the utility of the effort in participating. The four estimates were then weighted by sample size and averaged. The final estimate (2.37) was then used in those same equations to solve for the theoretical participation rates.[31]

These estimates and the following analysis presume that the ratio of any two utilities is approximately the same for any two subjects and that, within any given subject, that ratio remains essentially unchanged over trials. More precisely, I assumed that an individual's utility for some object (e.g. $1.00) takes the form of a distribution around a fixed mean which has a very small variance. Averaging over individuals in the way I have done assumes that all subjects share essentially the same fixed mean utility for that object. While these assumptions are fairly usual in research of this sort, they are by no means obviously appropriate. For example, the utility of the effort involved in participation was probably not that identical for all the subjects in these experiments nor for any given individual over all trials. I rather expect that the utility estimates contain some degree

[30]See p. 67 for those equations.

[31]See Appendix C, Part II, for the algebra.

of error. I have assumed that the error was random and did not systematically bias the findings. Analytic procedures are not available to check this latter assumption.

The following table presents the predicted and observed rates for the four conditions.

Table 2

Results: All Trials

CONDITION	OBSERVED RATES	PREDICTED RATES
1: Horizontal Disagreement, Active Other	.65 $(\frac{163}{252})$	.64
A: Vertical Disagreement, Active Other	.52 $(\frac{132}{252})$	.53
B: Vertical Disagreement, Inactive Other	.47 $(\frac{129}{276})$	.53
2: Horizontal Disagreement, Inactive Other	.44 $(\frac{101}{228})$	.37

In order to make a confident statistical decision regarding the small differences at issue, a larger sample than financial considerations permitted would be required. However, as in the pretest, the rank ordering of the participation rates is as expected. The rates for Conditions 1 and A fit the model's predictions correctly. What is problematical is the difference between the rates for Conditions A and B and the difference between Conditions B and 2. With respect to the former, the predicted difference and the observed difference are both so small that it is difficult to say in any conclusive way whether the data confirm or disconfirm the model. This is particularly so in light of the very close fit between the pretest data and the model for this comparison. The observed rate is not, I believe, importantly divergent from the model. The rates for Conditions A and B are still within .05 of each other (the maximum difference which the model says they should be), and neither is widely divergent from the predicted figure .53.

There is one observed rate which substantially varies from the predicted figure--the high rate of participation in Condition 2. No set of hypothetical numbers leads to the model's predicting rates for conditions B and 2 which are as close as those observed. While the rank order is correct, the observed rate for this group is simply too high. Detailed examination of the pretest data as well as a careful scrutiny of the residence patterns of the subjects in this condition did not suggest an explanation for this high rate in which I had any confidence. I did observe that 18 of the participation instances in this condition involved a subject coming to the place where the meetings were held in the company of another subject. In all cases, the other subject was in a condition for which a higher participation rate is predicted. In the section which presents the pretest data, I argued that the high participation rates for Condition 1 were a function of the reduced cost of participation brought about by the ease of transportation and social benefits involved in the arrangements those subjects made for coming together to the study. Using the same logic, I dropped the three subjects who accounted for the 18 participation instances under consideration here and recomputed the participation rates for Condition 2. The resulting rate approximated the theoretical prediction far better; however, this discovery must be evaluated in comparison with the changes in the rates for the other three conditions when similar instances of participation are also deleted. When the rates are recomputed for each condition, dropping from consideration the already mentioned three subjects in Condition 2, their partners, and two subjects in Condition 1 and another two in Condition A, the final figures have essentially the same relationship to each other as the original ones, with the exception that the rates for Conditions A and B are reversed in rank order. This reversal is as problematic as the original high rate of participation in Condition 2, and the figures are based on an even smaller sample size.

At this point I decided to question the rather simple assumption I made in computing the theoretical rates that $\frac{u(1.00)}{u(E)} = 4\,\frac{u(.25)}{u(E)}$. This assumption asserts that subjective utilities are directly proportional to money; it is not an assumption directly implied by the model. I wanted to investigate the importance of having made that assumption by estimating the utilities from the data and checking to see if new predictions based on these estimates would better fit the data. Since I only needed to know the ratios of the utilities and not their absolute values, I could arbitrarily fix the scale of measurement by setting one utility equal to some constant. In this case, I set u(1.00) equal to 100. 100 was chosen for ease of calculation. Data from Condition 1 was then used to solve for u(E). Using these numbers and the observed participation rate for Condition A, the equation for generating the theoretical participation rate for Condition A was solved for u(.25). Conditions 1 and A were used because they showed the best fit with the model in previous analysis. Using these estimates, $\frac{u(1.00)}{u(E)}$ was approximately equal to 20 $\frac{u(.25)}{u(E)}$. When these figures were used to generate new predictions, however, the theoretical rates turned out to be the same as those made under the original assumption; they did not alter the fit of the data to the model. If large amounts of money were used in the experiments, however, the assumption of direct proportionality would be unwise and separate estimation of each utility would be recommended. Since separate estimation means using up more of the data for estimation purposes, an experiment with more conditions than I had would be in order.

In another effort to examine the fit between the data and the model, secondary analysis was conducted which relates to the earlier problem of the differences between the Monday and Thursday trials. Some of the decline in Thursday participation rates can be attributed to severe weather conditions on several of those trials. Trial 3 (Figure 24) occurred during a tornado threat. On the night of trial 4 (Figure 24) a severe thunderstorm hit the area. Both of these events can be viewed as increasing the effort or cost in participating, and increased cost reduces participation. This interpretation is supported by the return to a higher participation rate on the trial immediately following each of these two events. (See Figure 22, trials 6 and 9). The interpretation does not, however, account for the leveling off of the last two Thursday trials to a point substantially lower than that for the last two Monday trials. (The <u>high</u> rate of participation for the first Thursday trial is very likely merely a function of the fact that this was the first meeting for the subjects and it followed their briefing session by less than 24 hours. A decline immediately after that was to be expected.)

Since the graphs suggest quite different patterns of participation for the two sets of trials, it could be that the cost of participation varies with the day of the trial. If this were so, then the predicted and observed rates on the previous table represent some average of two quite different sets of utilities. To investigate this, I computed the same table separately for the Monday trials and again for the Thursday trials. The same estimation procedure described earlier was used to get two separate utility ratios.[32] These two figures were used to arrive at the rates in the following table.

Table 3

Results by Day of Trial

	MONDAYS		THURSDAYS	
CONDITION	OBSERVED	PREDICTED	OBSERVED	PREDICTED
1: Horizontal Disagreement; Active Other	.71 $(\frac{89}{126})$	.69	.59 $(\frac{74}{126})$	.59
A: Vertical Disagreement; Active Other	.55 $(\frac{70}{126})$	.58	.49 $(\frac{62}{126})$	.49
B: Vertical Disagreement; Inactive Other	.51 $(\frac{70}{138})$	.58	.43 $(\frac{59}{138})$	.49
2: Horizontal Disagreement;	.52 $(\frac{59}{114})$	.43	.36 $(\frac{41}{114})$	.32

Because these figures are based on only half the original number of cases, they are even more subject to the impact of any error, including random fluctuation, which may be operating. They do, however, have some heuristic value. The only reversal in the predicted rank ordering is in the participation rate for Condition 2 on Monday trials. Indeed, the fit for that condition on the Thursday partition is sufficiently close to suggest that virtually all of the inflation of the

[32] See p. 77 for a description of the procedure; the full algebra is in Appendix C, Part III.

rate for that condition in the original table for all 12 trials may be due to the Monday rates alone. Of course, I cannot account for the high rate in the Monday trials any more than I could in the total figures. However, the fit of the Thursday trials and the pretest data lead me to suspect that the model is very likely not in error in a fundamental sense. I rather suspect that the result is due to the operation of some unknown and uncontrolled-for variable not covered by the model in its present state of development.

Turning now to the participation rate of Condition B, we find that the same problem in the data for all trials characterized both halves of the data. Participation by these subjects is too low in both sets of trials, although the absolute rates are not drastically divergent from what would be expected. This analysis suggests that I may have been too casual in my earlier claim that this particular result is not importantly divergent from the model. However, the sample size and the campus conditions during the execution of the research have persuaded me that this is the most plausible conclusion that can be made until more adequate data can be gotten.

I indicated in the previous chapter that the experimental sequence was assumed to be an independent trials process. To check that assumption, a one-step analysis for inter-trial dependency was executed; the results are presented by experimental condition in the following tables. If the process were an independent trials one, then the probability of participation on trial n + 1 given participation on trial n would be the same as the probability of participation on trial n + 1 given non-participation on trial n. More formally expressed, if the data represented in an independent trials process, then:

$$P(A|A) = P(A|\bar{A}), \quad \text{and}$$

$$P(\bar{A}|A) = P(\bar{A}|\bar{A}).$$

As the tables clearly indicate, this was not observed.

Table 4

One-step, Inter-trial Dependency: Vertical

Disagreement: Active Other Situation

(CONDITION 1)

trial n	Trial n + 1	A	$\bar{A}$	
A	.00	.79 (27)	.21 (7)	34
	1.00	.72 (73)	.28 (29)	102
$\bar{A}$	.00	.43 (32)	.57	74
	Total	132	78	210

$P(A_{n+1}) = .63$ $\quad$ $P(\bar{A}_{n+1}) = .37$

A = participation

$\bar{A}$ = non-participation

Table 5

One-step, Inter-trial Dependency: Horizontal

Disagreement: Active Other Situation

(CONDITION A)

trial n	Trial n + 1	A	$\bar{A}$	
A	.00	.86 (6)	.14 (1)	7
A	.25	.82 (36)	.18 (8)	44
A	1.00	.73 (43)	.27 (16)	59
$\bar{A}$	.00	.23 (15)	.77 (50)	65
$\bar{A}$	.25	.26 (9)	.74 (26)	35
	Total	109	101	210

$P(A_{n+1}) = .52$ $\qquad$ $P(\bar{A}_{n+1}) = .48$

A = participation

$\bar{A}$ = non-participation

Table 6

One-step, Inter-trial Dependency: Horizontal

Disagreement: Inactive Other Situation

(CONDITION B)

	Trial n + 1	A	$\bar{A}$	
trial n, A	.00	.65 (28)	.35 (15)	43
	.25	.71 (13)	.29 (5)	18
	1.00	.78 (40)	.22 (11)	51
trial n, $\bar{A}$	.00	.19 (19)	.81 (81)	100
	.25	.17 (3)	.83 (15)	18
	Total	103	127	230

$P(A_{n+1}) = .45$ $P(\bar{A}_{n+1}) = .55$

A = participation

$\bar{A}$ = non-participation

Table 7

One-step, Inter-trial Dependency: Vertical

Disagreement: Inactive Other Situation

(CONDITION 2)

trial n	Trial n + 1	A	$\bar{A}$	
A	.00	.58 (39)	.42 (28)	67
A	1.00	.47 (8)	.53 (9)	17
$\bar{A}$	.00	.29 (31)	.71 (75)	106
	Total	78	112	190

$P(A_{n+1}) = .41$ $\qquad$ $P(\bar{A}_{n+1}) = .59$

A = participation

$\bar{A}$ = non-participation

For all experimental conditions, the probability of participation following participation is greater than the probability of participation following non-participation. Similarly, if a subject in any of the conditions did not attend the meeting on trial n, he is more likely to not attend than attend on trial n + 1. This indicates some dynamic occurring over time which is clearly not accounted for by the model.

Those same tables were constructed to show the effect of financial outcomes on trial n upon observed participation for trial n+1. The figures for Conditions 1, A and 2 would suggest that receiving money on trial n has a slight dampening effect upon participation for trial n + 1. The rates for Condition B, however, suggest just the opposite. The previously discussed differences in the participation patterns for Thursday and Monday trials make it difficult to interpret these conditional probabilities in a way which would inform the model substantively. If indeed the cost of participating changes between any two consecutive trials (e.g., between a Monday and the next Thursday), then the rates in the preceding tables do not simply reflect the effect of financial payoff. In addition, the small numbers upon which these rates are based, as well as their wide range (varying from n = 7 to n = 102), make them undifferentiable at any high confidence level by the usual tests for statistical significance. It is my feeling that financial rewards do not affect the conditional probabilities of participation in any important way; they may have a slight impact, but it is not clear in which direction.

It is evident, however, that the observed process was not an independent trials one. If the inter-trial dependency is caused by an aspect of the experimental procedure which is substantively veridical, then the full dynamics of the process are not properly captured by the theoretical formulation. Homan's discussion of the principle of diminishing returns[33] and Festinger's development of the idea of post-decisional reduction[34] both imply that the model does not capture a dynamic occurring between trials which is substantively important to the process. If so, then the model clearly needs revision if it is to account for individual participation rates. However, there is no clear way to decide whether the findings are due to the process just alluded to or to a "methodological error." That is, while the trials in the experiment were obviously not independent, the question remains whether that aspect of the experiment which accounts for the dependency veridically and importantly represents the phenomenon I want to study. Festinger and Homans may be correct in suggesting that to explain the results of my experiments I need to take into account some post-decisional dynamics which make the trials interdependent. Certainly, the subjects knew there were a definite number of meetings to be held and they were aware of the maximum amount of money they could receive as a result of those trials. On any given trial, they knew how many more meetings there were to be and, therefore, how much money was still at issue. This future orientation of a limited amount of rewards might easily have introduced an inter-trial dependency into the experiment. What I do not know is whether I want to bother explaining that part of the findings. If they were simply an artifact of the experimental procedure, I do not;

[33] George C. Homans. Social Behavior: Its Elementary Forms. New York: Harcourt, Brace & World, 1961.

[34] Leon Festinger. A Theory of Cognitive Dissonance. Evanston, Ill.: Row, Peterson & Co., 1957.

if they are an intrinsic part of the process I am trying to explain, then I do. That decision must be made on theoretical grounds; the data are not directly useful in making the choice. Nor is it clear that information from the field will assist. If we look at a typical situation of a man in a labor union for example, many changes occur between meetings (trials). The content and importance of the decisional alternatives are not stable; his expectations about the behavior of other members in the union may change; the cost of participation may also vary widely. These changes would very likely far outweigh the effect of whatever dynamic might be causing the trial dependency described here.

I engaged in one final bit of after-the-fact speculation in exploring the problem of fit. It is possible that the subjects in these experiments were not homogeneous on some characteristic such as "risk-taking" or "cost cutting." That is, the sample may have been composed of subjects predisposed toward high or low participation in some manner independent of the experimental manipulations, and this may have biased the observed participation rates in some way. To investigate this, the data were graphed to show the percentage of subjects in each experimental condition who participated in any given number of trials (Figure 25). The distribution for each condition takes the form of a bi-modal distribution. The median number of meetings attended for each condition are shown below:

Table 8

Median Number of Meetings Attended

Condition 1: Vertical Disagreement: Active Other	8
Condition A: Horizontal Disagreement: Active Other	6
Condition B: Horizontal Disagreement: Inactive Other	7
Condition 2: Vertical Disagreement: Inactive Other	7

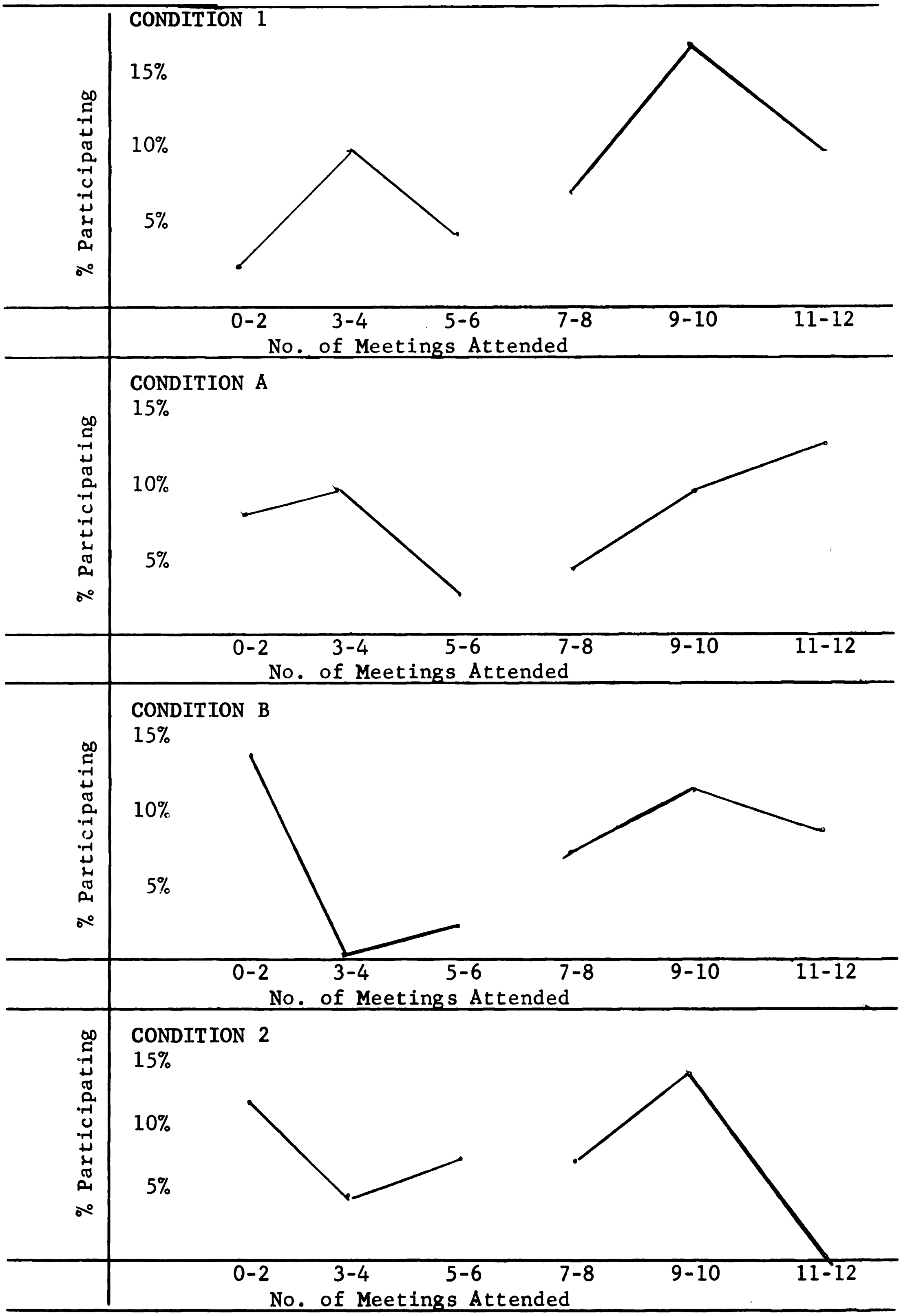


Figure 25: Participation rates by total number of meetings attended.

The bi-modal distributions could suggest that the subjects were not homogeneous on some personality characteristic, but the similarity of the medians for the four conditions implies that it apparently did not bias the findings. That is, there are approximately the same number of "high participators" and "low participators" in each experimental condition. It should be noted, however, that the bi-modal distribution need not be interpreted as indicating the presence of some predisposing personality characteristic. The previous analysis of the inter-trial dependency in this data indicates that $P(A|A) > P(A|\bar{A})$ and $P(\bar{A}|\bar{A}) > P(\bar{A}|A)$. A dependency of this sort should result in a bi-modal distribution. In such a case, however, the medians of the four conditions would not necessarily be similar.

Whatever the reason for the bi-modality, comparison of "high participators" with "low participators" by experimental condition is in order. Participation rates by trial and by experimental condition for "low participators" and "high participators" are presented in Figures 26 and 27 respectively.

It seems clear that the decline in the participation rate discussed earlier is largely due to the low participators and to Condition B in the high participator group. This last might account for the fact that the observed difference between participation rates for Condition A and Condition B was slightly greater than predicted. Why the difference is still a moot point, but this analysis at least suggests where to look for the answer.

This analysis also suggests where to look in investigating the lack of fit between the data for Condition 2 and the theoretical predictions. The trend and variance of the graph for low participators

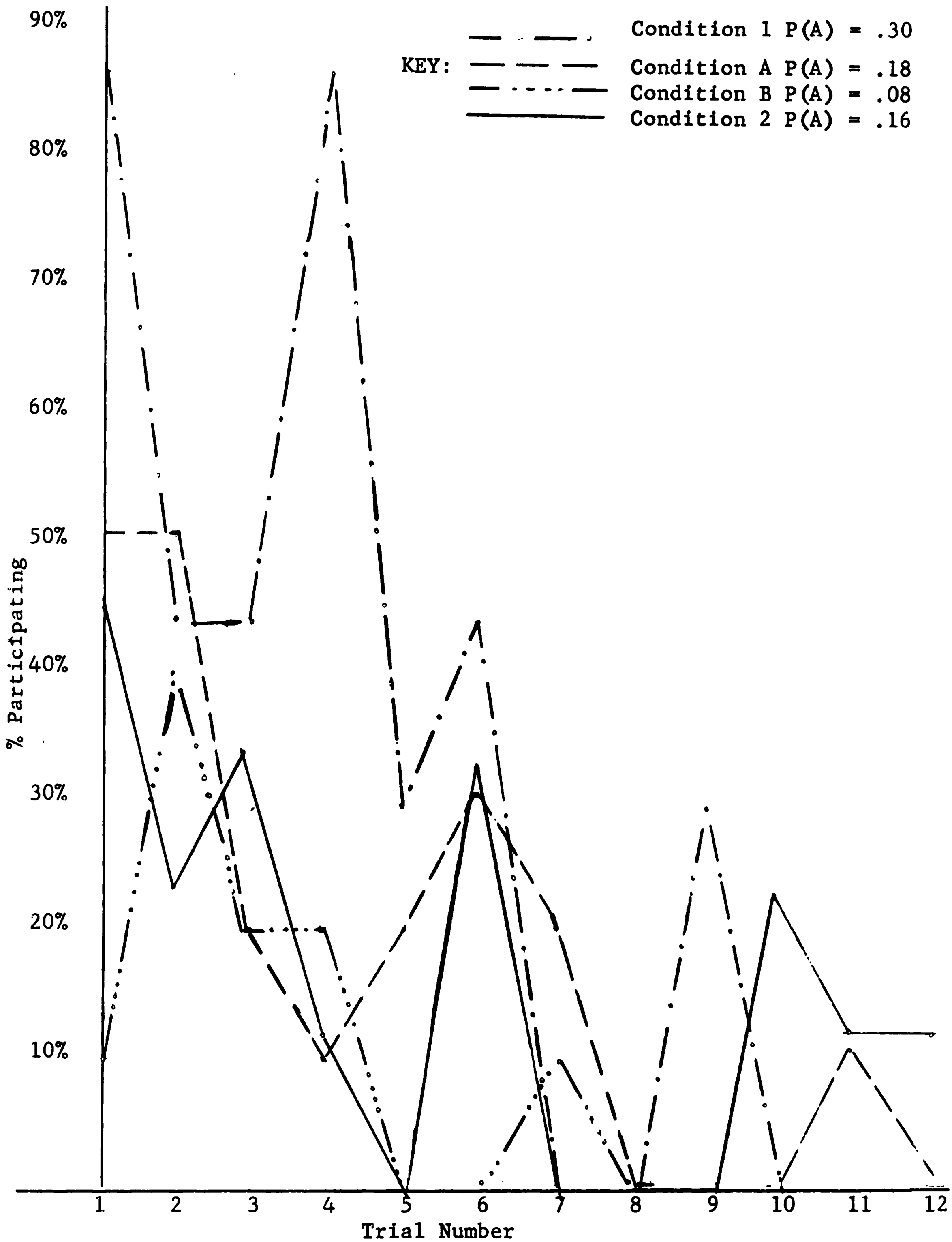


Figure 26: Participation rates by trial and experimental condition:

low participators only

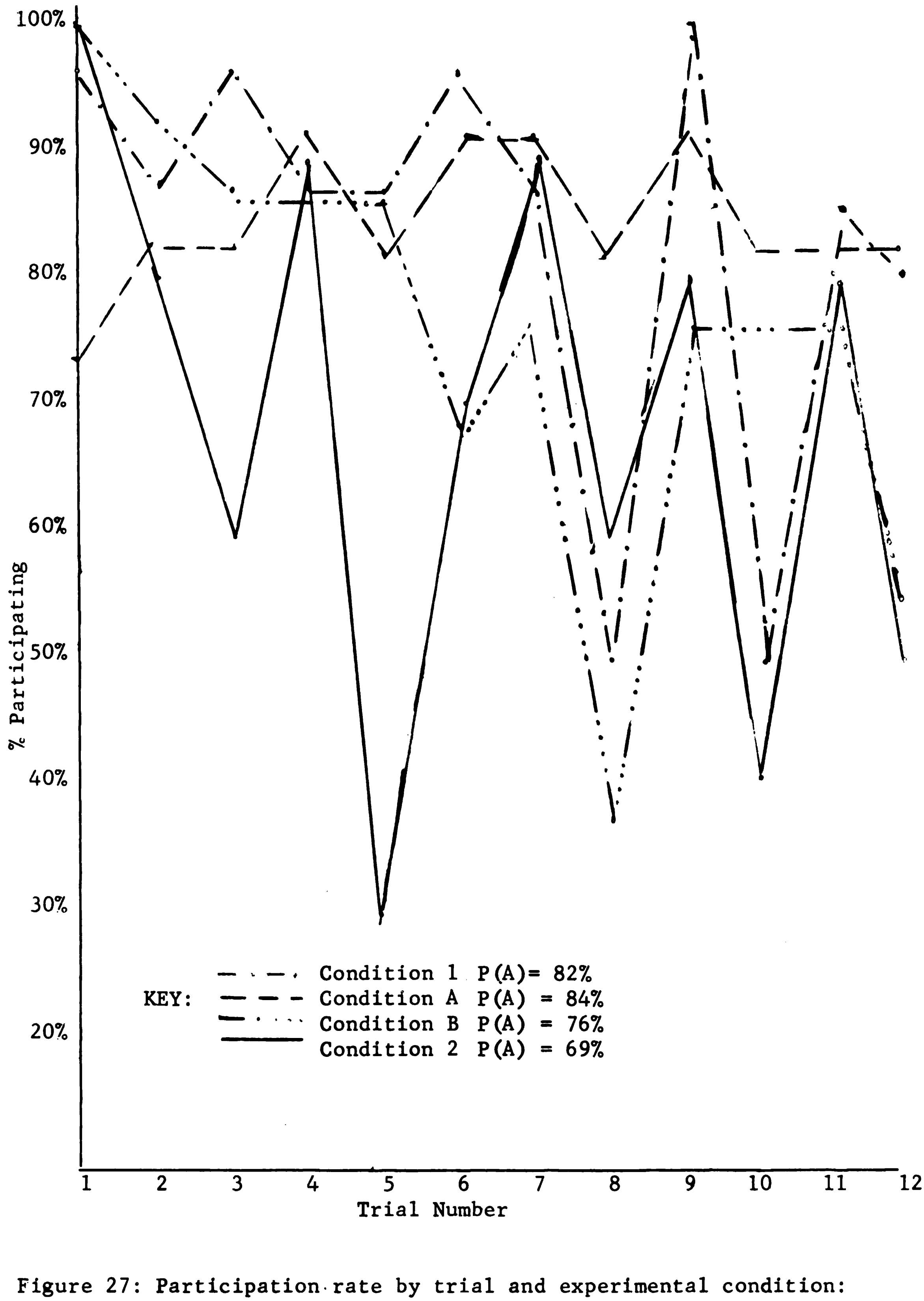


Figure 27: Participation rate by trial and experimental condition: high participators only

in Condition 2 is in keeping with that for low participators in the other three conditions. The graph for the high participators in Condition 2, however, is considerably more erratic than the other three which are relatively stable except for trials 8 and 10 (which reflect the influence of the student strike and a thunderstorm) and for the overall decline in the rates for Condition B.

Examination of these graphs makes one thing apparent; the model will never generate predictions which fit the participation rates for either high or low participators taken separately. Predicted rank ordering is not even maintained. If the bi-modality is a function of whatever introduces inter-trial dependency into the experiment rather than some personality characteristic such as "risk-taking", this is not particularly problematical.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

I set out to accomplish three tasks in this dissertation. The first was to explicate and reconstruct selected segments of the reasoning underlying two classic studies of formal authority systems: Robert Michels' Political Parties and Lipset, Trow and Coleman's Union Democracy. I have argued that both authors were discussing the same social-psychological process, that both relied on essentially the same reasoning in arriving at their respective conclusions about that process, and that this reasoning was consistent with both conclusions when specified for the particular structural conditions described in each study. This work was the substantive foundation for the rest of the dissertation.

My second task was to formalize these theoretical ideas. I conceptualized the problem as a choice situation in which a rank-and-file member in an organization decides whether or not to participate depending upon expected outcomes associated with each of those alternatives and the utilities he attaches to them. General utility structures were outlined in a manner which was suggested by my analysis of Lipset and Michels' works, by relevant passages in Gamson's Power and Discontent, and by the general literature on preference and choice theory. The Camilleri-Berger formal model of decision-making was then used to specify how these utilities influence which alternative is likely to be chosen. The abstract formulation of the model was then interpreted for certain structural situations central to Lipset and Michels' arguments. Specifically, these structural situations were: flat versus centralized authority patterns and three different agreement patterns (consensus, horizontal disagreement, and vertical disagreement). The relative importance of leader influenceability was discussed for each structural situation described.

The third task accomplished here was the execution of a field experiment designed to:

a) deal with a substantive disagreement between Michels and Lipset--i.e., the conditions which influence participation rates in flat authority systems; and

b) provide sufficient data to permit a preliminary exploration of some of the basic predictions of the model.

In the experiment, the subjects were given an opportunity to participate in a series of meetings in a three-person group, each group consisting of one subject, a leader and another non-leader. All the groups were characterized by flat authority distributions. There were four experimental conditions:

a) groups with vertical disagreement structures in which the other non-leader was an active member;

b) groups with vertical disagreement structures in which the other non-leader was an inactive member;

c) groups with horizontal disagreement structures in which the other member was active; and

d) groups with horizontal disagreement structures in which the other non-leader is inactive.

This four-way comparison was generated by varying one structural condition arising directly from a consideration of Michels and Lipset (the disagreement pattern) and one parameter of the model arising from the formalization process directly (the subject's expectations about the activity rates of other non-leaders). Observed and theoretical participation rates were evaluated for goodness of fit.

Conclusions

In spite of acknowledged inadequacies of the data, I feel that the experimental results provided a very encouraging empirical exploration of the model. Rank order predictions were correct and remarkably stable in spite of the extreme social unrest and intermittent instances of very unfavorable weather conditions which characterized the research process. Actual numerical predictions were close to the observed rates for all experimental conditions but one (Condition 2: Vertical Disagreement with Inactive Other). Secondary analysis suggested that the model's predictions may be inaccurate for only half of the trials in even that condition.

Empirical investigation of the finer structure of the model was less supportive. The model implied that the experiment would be an independent trials process but that was not confirmed by the data. A strong one-step inter-trial dependency was found and this dependency did not appear to be a function of the pay-off structure. I do not know whether the observed dependency was due to a methodological error or to some as yet unattended-to post-decisional dynamic of the sort described by Homans and Festinger. Examination of the sequential nature of the process requires further theoretical and empirical study.

The main impetus for this research was the argument between Michels and Lipset, et al. regarding the conditions which maintain high rates of rank-and-file participation in flat authority systems.

Michels asserted that there are no such conditions; Lipset disagreed. This research strongly suggests that high participation rates are possible, and that the theoretical propositions of the model formulated to account for them are largely correct. However, the conclusion which is necessary to draw in order to settle the real argument is the one which both Lipset and Michels grant out of hand--namely, that high participation rates operate to keep a flat authority system stable and to prevent it from moving toward centralization. In no way have I demonstrated that; and in the absence of data bearing directly on that assertion, a definite conclusion cannot yet be reached.

Future Investigation

It is customary near the end of a dissertation to indicate what implications the present study has for the "next step" in researching the theoretical problem at hand. While I feel these experiments provided a good basis for preliminary evaluation of the model, I do not find them particularly rich in implications for the future. The data simply do not permit any definitive evaluation of the fine structure of the model; they offer encouraging support for the model's gross predictions in three of the experimental conditions, but fit is less than adequate for the fourth.

I believe that what is most needed now is better data--or rather, a more adequate research design. This research was actually a field experiment. It took place in a laboratory, but the variable measured was whether or not the subjects chose to come in to the laboratory. That choice was not governed simply by factors I controlled for; it was influenced by weather, strike activities, examination schedules, health, and so on. What is needed is a design with better experimental controls. In addition, it would be desirable to have it be more economical so that investigation of larger groups and high pay-off conditions would be more efficient.

The new design must also be more flexible than the one employed here. It is important that I have an experimental procedure which will permit me to add certain additional variables (e.g., influence, conformity, variation in group size) and which would still permit comparing the data from one study to the next. This is always desirable for efficiency reasons, but it is particularly important here. By way of example of the kind of problem I have in mind, in an earlier chapter dealing with the effect of influence on participation in committee situations, the equations which predict rates for groups in which the leader is influenceable can be expressed in such a way that they consist of two distinct parts: the equation predicting the rate for the same group <u>without</u> influence plus some additional terms which analytically represent the effect of adding influence. As it now stands, adding influence in the experiments would require such major changes in procedure that the findings would not be directly comparable to the no-influence situation. Consequently, empirical evaluation of that equation would be difficult.

Continued investigation of the substantive assertions of the model in the near future will involve exploring several areas not dealt with at all in these experiments. The first has already been aluded to --the study of influence processes. As it is presently formulated, the model directly suggests empirical study which would differentiate persuasion from conformity. To investigate this, the decisional alternatives would probably need more apparent content than they had in the experiments described here. I would also like to consider groups which have expertise structures. The effect of balance or imbalance between authority and expertise structures in organizations has been an important sociological concern since Weber. The work done by Camilleri and Berger on just this problem should provide some guidelines as to how to incorporate this process into the model.

In addition to the "who influences who, when" question, I eventually want to deal with Gamson's ideas about the _forms_ which influence can be expected to take depending upon one's position in the authority structure and upon the nature of the authority system itself. This particular development, however, would constitute a major theoretical addition to the model. My present state of thinking about the issue has not yet approached the stage of rigorous formulation.

I also plan to return to the problem which stimulated this whole venture--the expected stability of various forms of authority distributions. While I have argued consistently that this is why the investigation of the dynamics which influence participation rates in flat power distributions is so important, in no way did I empirically test any propositions which directly relate those rates to stability. These implications of this paper need further study and such study could be conducted without major revision of the model, provided evidence existed which strongly supported the model's predictions about the conditions which account for changes in participation rates.

APPENDICES

APPENDIX A

FORMAL PROPERTIES OF THE MODEL

PART I: The ratio of x (cost) to Y (reward).

The general formulation asserts that:

$$P(A) = \frac{\alpha\frac{Y}{x}}{\alpha\frac{Y}{x} + \beta\frac{Y}{x} + \frac{x}{x}} \quad .$$

If $\frac{Y}{x}$ = some constant, b, then:

$$P(A) = \frac{\alpha b}{\alpha b + \beta b + 1} \quad .$$

And P(A) depends on the <u>ratio</u> of cost and reward, but not on their absolute values.

PART II: The ratio of α (the individual's expectation that the group will choose Y if he participates) to β (the individual's expectation that the group will choose Y even if he does not participate).

The general formulation asserts that:

$$P(A) = \frac{\alpha Y}{\alpha Y + \beta Y + x} = \frac{\alpha/\beta \ Y}{\alpha/\beta \ Y + \beta/\beta \ Y + x/\beta} \ .$$

If α/β = some constant, d, then:

$$P(A) = \frac{dY}{dY + Y + x/\beta} \quad .$$

And P(A) depends upon the absolute values of α and β. Knowing the ratio of one to the other is not sufficient.

PART III: Increments in α relative to β.

If α is expressed in terms of β and that expression is substituted into the equation for P(A), then:

Let $\alpha = k\beta + c$:

$$P(A) = \frac{(k\beta + c)Y}{(k\beta + c)Y + \beta Y + x} .$$

Let $b = x/Y$, and

$$P(A) = \frac{(k\beta + c)b}{(k\beta + c)b + \beta b + 1} .$$

Let α' = some increase in α such that:

$$\alpha' = k\beta + nc$$

and:

$$P(A)' = \frac{(k\beta + nc)b}{(k\beta + nc)b + \beta b + 1} .$$

To compare P(A)' to P(A):

$$P(A) = \frac{(k\beta + c)b}{(k\beta + c)b + \beta b + 1} : P(A)' = \frac{(k\beta + nc)b}{(k\beta + nc)b + \beta b + 1} .$$

Crossmultiplying:

$$[(k\beta + c)b][(k\beta + nc)b + \beta b + 1] : [(k\beta + nc)b][(k\beta + c)b + \beta b + 1].$$

After simplification, we get:

$$c\beta b^2 + cb : nc\beta b^2 + ncb$$

and the second term is always greater than the first. $\therefore$ Increments in α relative to β always produce increments in P(A).

APPENDIX B

PRETEST DATA AND ESTIMATION PROCEDURES

PART I: The data:

The following tables present the prestest data by individual and by trial. Each table represents one experimental condition. The figures in the cells indicate the amount of pay-off the subject received on each trial. "X" indicates that the subject received $1.00, / indicates a pay-off of $.25 and 0 indicates that the subject received nothing.

Table 9

Raw Data - Pretest

CONDITION 1

Trials	1		2		3		4		5		Σ
	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A
Ss											
1	X		X		X		0		0		5
2	0		X		X		X		X		5
3	X		X		X		X			0	4
4	X		X		X		X		X		5
5	X		X		0		X			0	4
Totals	5		5		5		5		3		23

P(A) = 23/25 = .93

CONDITION A

Trials	1		2		3		4		5		Σ
	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A
Ss											
1		/	X		X			0		0	2
2	/		X		X		/			0	4
3		/		0		/		0		0	0
4		/	X		0		X			0	3
Totals	1		3		3		2		0		9

P(A) = 9/20 = .45

CONDITION 2

Trials	1		2		3		4		5		Σ
	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A
Ss											
1		0	X			0		0		0	1
2		0	X		0		0			0	3
3	0			0		0		0		0	1
4		0	X			0		0		0	1
Totals	1		3		1		1			0	6

P(A) = 6/20 = .30

CONDITION B

Trials	1		2		3		4		5		Σ
	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A
Ss											
1		/		0		0		0		0	0
2	X			0	X		X			0	3
3		/	0			0	0			0	2
4	0		X		X		0			0	4
5	X			0	0			0		0	2
Totals	3		2		3		3			0	11

P(A) = 11/25 = .44

PART II: Estimation procedure.

Using data from Condition 2 to solve for $\frac{u(1.00)}{u(E)}$:

$$.30(\text{obs. rate}) = \frac{1/4(\frac{u(1.00)}{u(E)})}{1/4(\frac{u(1.00)}{u(E)}) + 1} = \frac{(\frac{u(1.00)}{u(E)})}{(\frac{u(1.00)}{u(E)}) + 4}$$

$$.30(4 + \frac{u(1.00)}{u(E)}) = \frac{u(1.00)}{u(E)}$$

$$\frac{u(1.00)}{u(E)} = 1.7 .$$

Using the estimate (1.7) to solve for the predicted participation rates for the other three conditions:

Condition 1:

$$P(A) = \frac{aY_1}{aY_1 + x} = \frac{3/4\ (u(1.00))}{3/4\ (u(1.00)) + u(E)} = \frac{3/4(\frac{u(1.00)}{u(E)})}{3/4(\frac{u(1.00)}{u(E)}) + 1} = \frac{3(1.7)}{3(1.7) + 4}$$

$$P(A) = .56$$

Condition A:

$$P(A) = \frac{1/2\ (\frac{u(1.00)}{u(E)}) + 3/8\ (\frac{u(.25)}{u(E)})}{1/2\ (\frac{u(1.00)}{u(E)}) + 3/8\ (\frac{u(.25)}{u(E)} + 3/8\ (\frac{u(.25)}{u(E)}) + 1}$$

Letting $\frac{u(1.00)}{u(E)} = 4\ \frac{u(1.00)}{u(E)}$:

$$P(A) = \frac{1/2\ (1.7) + 3/8\ (.425)}{1/2\ (1.7) + 3/8\ (.425) + 3/8\ (.425) + 1} = .47$$

Condition B:

$$P(A) = \frac{1/2\ (\frac{u(1.00)}{u(E)}) + 1/8\ (\frac{u(.25)}{u(E)})}{1/2\ (\frac{u(1.00)}{u(E)}) + 1/8\ (\frac{u(.25)}{u(E)}) + 1/8\ (\frac{u(.25)}{u(E)} + 1}$$

Letting $\frac{u(1.00)}{u(E)} = 4\frac{u(.25)}{u(E)}$:

$$P(A) = \frac{1/2\ (1.7) + 1/8\ (.425)}{1/2\ (1.7) + 1/8\ (.425) + 1/8\ (.425) + 1} = .46$$

APPENDIX C

RAW DATA AND ESTIMATION PROCEDURES

PART I: The raw data:

The following tables present the full data by individual and by trial. Each page represents one experimental condition. Trial seven is blocked off to indicate that it was dropped from analysis. The figures in the cells indicate the amount of pay-off the subject received on each trial. "X" indicates that the subject received $1.00, / indicates a pay-off of $.25, and 0 indicates that the subject received nothing.

Table 10

Raw Data Condition 1

Trials	1		2		3		4		5		6		7		8		9		10		11		12		13		Σ
Ss	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A
1		0	0		0		0		X		X			0		0		0	0			0	X		0		8
2	0			0		0	X			0		0		0		0		0	0			0		0		0	3
3	0			0		0		0		0		0		0		0		0		0		0		0		0	1
4	X		X		X		X		X		X			0	X		X		X			0		0	X		10
5		0	X		X		X			0	0			0		0		0		0		0		0		0	4
6	X		X		X		0		X		X		X		X			0	X			0	X		X		11
7	X		0		X			0	X		0			0	X			0	X			0	X			0	8
8	X		X		X		0		X		X			0	0		X		X		X		0		0		12
9	X			0	X		X		X			0		0	X		X		X		X		X		X		10
10	X		X		0		X			0	X			0		0		0		0		0		0		0	5
11	X			0	X		X			0		0		0		0		0		0		0		0		0	3
12	X			0		0	0		X			0		0		0		0		0		0		0		0	3
13	X		X		X			0	0		0		X		0			0	X			0	0		X		10
14	X		X			0	X		0		X			0		0		0	X			0		0		0	6
15	X		X			0	X		X		X		X		0		X		X		X		X		X		12
16	X			0	0		X		0		X			0	0			0	X		0		X		X		10
17	X		X		0		X		0		X			0	X		X		X			0	X			0	10
18	0		X		0		X		X		X		X		X		0		X		X		0		X		13
19	X		X		X		X			0	X			0	X			0	0		X		X			0	9
20	X		X		X		X			0	X		X			0		0	0			0	X		X		9
21	X		X		0		X		X		0		X		X		0		0		X			0	X		12
Totals	19		15		16		18		14		16		6		12		7		16		7		12		11		169

X = 1.00 pay-off, 0 = .00 pay-off

Table 10 (cont'd.)

Raw Data Condition A

Trials	1		2		3		4		5		6		7		8		9		10		11		12		13		Σ
	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A	$\bar{A}$	A
Ss																											
1	X		X		0			0		0		0		0		0		0		0		/		/		0	3
2		0		0		/	X			/	X			/	X		X		X			0	X		/		7
3		0	/		X		X		/		0		/		/		/		X		X		/		/		12
4	0		X			0	/			0	X			0		/		/		/		0	X			0	5
5	X		X		X		0		X			/		/	X			/	/		X		/			/	9
6	/		X		X		X		X		/		X		0		X		X		X		0		X		13
7		/		/		0		0		0		/		0		0		/		0		/		0		0	0
8	X			0	/			0	X		X			0	X		/		X		X		X		X		10
9	/			/		0		0		0	/			0		0		0		/		/		0		0	2
10		0		0		0		/		/		0		0		0		0		0		0		0		/	0
11	X			/	/			0		0		0		0		0		0	X			0		0		0	3
12		0	X			/		0		0		0		0		/		0		/		0		/		0	1
13		0	/			/		0		0		0		0		0		/		0		0		0		0	1
14	/		X		X		/		/		X		X		X		X		/		X		/		X		13
15		0		/		0		0	/		X			0		/		/	X			0		/		0	3
16	/		X			/	/			0	/			/	X			/		0	X		X		/		8
17	0		X		X		/		/		X			0		0	X		/		X			0		0	9
18	X		/		X		/		X		/			0	/		X		/		/		/		/		12
19		/	/		/		/		/		/		X		/		/		/		/		X		X		12
20	0		X			0		0	X			0		/		/		0		0		0		/		/	3
21	X		X		X		/		/		X			/	/		/		/			0		/	X		10
Totals	13		14		11		11		11		13		4		10		9		12		9		10		9		136

X = 1.00 pay-off; / = .25 pay-off; 0 = .00 pay-off

Table 10 (cont'd.)

Raw Data Condition B

Trials	1		2		3		4		5		6		7		8		9		10		11		12		13		Σ
	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A	Ā	A
Ss																											
1	X		X		X		X		/		0		X		/		/		/		0		0			0	12
2	0			0	X		0		X		0			0	X		X		X		/		X		0		11
3		/		/	X		X			0		0		0		0		/		0		0		/		0	2
4	X		X		0			0	X			0		0	0		X		0		X		0		X		10
5	0		0		X		0		X		/			/	X			/	0		X			0	/		9
6	0		X		/		0		0		X			0	0			0		0	0		/			0	9
7	/		0		X		X		/		X			0	0			0		0		0		0		0	7
8	0		/			0	X		/		X		/		X			0	X		/		X			0	10
9		0	0			0		0		0		0		0	X			0		0		0		0		0	2
10		0	0			0		0		0		0		0		0		0		/		0		0		0	1
11	0			0		0	X			0		0		/		0		/		0		/		0		0	2
12		0	0			0		/		0		/		0		0		0		0		0		0		0	1
13	X		X		0		0		0		X			/	0		X		X		X		X		/		12
14		0		0		0		0		0		/		0		0		0		0		0		0		0	0
15	/		X		0		0			0	X		0		X		0		0		0		0		0		12
16	X		X		X		X			/		0		0		/		0	X			0	X		X		7
17		0		0	0			0		0		0		0		0		0		0		0		0		0	1
18	X		X		X		X		0			0	X		/			0	0			0	/			0	10
19	X		0		/			0		0	/			/	X			0		/		0		0		0	5
20		/	0			0		0		0		0		0		0		0		0		/		/		0	1
21	0		/			0	X		X			0		0		0		0	0		0		/		0		8
22		/		0		0		0		/		0		/		0		0		0		/		0		0	0
23		0		0		0		0		0		0		0		0		0		0		0		0		0	0
Totals	14		16		13		13		10		9		4		12		5		10		9		10		8		133

X = 1.00 pay-off; / = .25 pay-off; 0 = .00 pay-off

Table 10 (cont'd.)

Raw Data Condition 2

Trials	1 A	1 $\bar{A}$	2 A	2 $\bar{A}$	3 A	3 $\bar{A}$	4 A	4 $\bar{A}$	5 A	5 $\bar{A}$	6 A	6 $\bar{A}$	7 A	7 $\bar{A}$	8 A	8 $\bar{A}$	9 A	9 $\bar{A}$	10 A	10 $\bar{A}$	11 A	11 $\bar{A}$	12 A	12 $\bar{A}$	13 A	13 $\bar{A}$	Σ A
Ss																											
1	0		X			0	X			0	X		X		0		0		X			0	0		0		10
2	0		0			0	0			0	0			0	0		0		0		0		0			0	9
3	0			0		0		0		0		0		0		0		0	0			0		0		0	2
4	X		X		0		X		0		0			0	0		X		X			0	X			0	10
5	0		0			0		0		0	0			0		0		0		0	0			0		0	4
6		0		0		0	X			0	0		0			0		0		0	0		0		X		6
7	0		0		0		0			0	X			0	X			0	0			0	X		0		9
8	0		0		0		X		0		X			0	0			0	0		0		X			0	10
9	0			0	0		0			0		0		0	0			0	0		0			0		0	6
10		0		0		0		0		0		0		0		0		0		0		0		0		0	0
11	0			0		0		0		0		0		0		0		0		0		0		0		0	1
12	0		0		0			0		0		0		0	0		0		X			0	0		0		8
13	0		0			0	0			0	X			0	0		0		X			0		0	0		8
14		0		0		0	0			0		0		0		0		0		0		0		0		0	1
15	0		0			0	0		0		0		0		0			0		0	X		0			0	9
16		0		0		0		0		0		0		0		0		0		0		0		0		0	0
17	0			0	0			0		0	0			0		0		0		0		0		0		0	3
18	0		0			0		0		0	0		0			0	0			0		0	0		0		7
19		0	X		0			0		0		0	0			0		0		0		0		0		0	3
Totals	14		11		7		10		3		11		5		9		6		9		6		9		6		106

X = 1.00 pay-off 0 = .00 pay-off

PART II: Estimation and prediction - full twelve trials:

Estimate $\frac{u(1.00)}{u(E)}$ for each experimental condition:

Condition 1:

Let $\frac{u(1.00)}{u(E)} = x$

$$.65 = \frac{3/4(x)}{3/4(x) + 1} = \frac{3x}{3x + 4}$$

$$.65(3x + 4) = 3x$$

$$x = 2.5$$

Condition A:

Let $x = 4(\frac{u(.25)}{u(E)})$

$$.52 = \frac{1/2(x) + 3/8(1/4\ x)}{1/2(x) + 3/8(1/4\ x) + 3/8(1/4\ x) + 1}$$

$$= \frac{19x}{22x + 32}$$

$$.52(22x + 32) = 19x$$

$$x = 2.2$$

Condition B:

Let $\frac{u(1.00)}{u(E)} = x;\ x = 4(\frac{u(.25)}{u(E)})$

$$.47 = \frac{1/2(x) + 1/8(1/4\ x)}{1/2(x) + 1/4(1/4\ x) + 1} = \frac{17x}{18x + 32}$$

$$.47(18x + 32) = 17x$$

$$x = 1.8$$

Condition 2:

Let $\frac{u(1.00)}{u(E)} = x$

$$.44 = \frac{1/4(x)}{1/4(x) + 1} = \frac{x}{x + 4}$$

$$x = 3.1$$

Weighting each estimate by its sample size and averaging, we get:

$$x = \frac{21(2.5) + 21(2.2) + 23(1.8) + 19(3.1)}{84}$$

$$x = 2.37 = \frac{u(1.00)}{u(E)}$$

Using this estimate to solve for the theoretical participation rates:

Condition 1:

$$P(A) = \frac{3/4(2.37)}{3/4(2.37) + 1} = .64$$

Condition A:

$$P(A) = \frac{1/2(2.37) + 3/8 \cdot 1/4(2.37)}{1/2(2.37) + 6/8 \cdot 1/4(2.37) + 1} = .53$$

Condition B:

$$P(A) = \frac{1/2(x) + 1/8(1/4\ x)}{1/2(x) + 1/4(1/4\ x) + 1} = .53$$

Condition 2:

$$P(A) = \frac{1/4(x)}{1/4(x) + 1} = .37$$

PART III: Estimation and prediction by day of trial:

MONDAY TRIALS

Estimate $\frac{u(1.00)}{u(E)}$ for each experimental condition:

Condition 1:

$$.71 = \frac{3/4(x)}{3/4(x) + 1} = \frac{3x}{3x + 4}$$

$$3x = .71(3x + 4)$$

$$x = 3.3 = \frac{u(1.00)}{u(E)}$$

Condition A:

Let $\frac{u(.25)}{u(E)} = 1/4x$

$$.55 = \frac{1/2(x) + 3/8(1/4\ x)}{1/2(x) + 6/8(1/4\ x) + 1}$$

$$19x = .55(22x + 32)$$

$$x = 2.5 = \frac{u(1.00)}{u(E)}$$

Condition B:

Let $\frac{u(.25)}{u(E)} = 1/4x$

$$.51 = \frac{1/2(x) + 1/8(1/4\ x)}{1/2(x) + 1/4(1/4\ x) + 1}$$

$$17x = .51(18x + 32)$$

$$x = 2.1 = \frac{u(1.00)}{u(E)}$$

Condition 2:

$$.52 = \frac{1/4(x)}{1/4(x) + 1} = \frac{x}{x + 4}$$

$$x = 4.3 = \frac{u(1.00)}{u(E)}$$

Weighting each estimate by its sample size, we get:

$$x = \frac{21(3.3) + 21(2.5) + 23(2.1) + 19(4.3)}{84}$$

$$= 3.0$$

Using this estimate to solve for the theoretical participation rates:

Condition 1:

$$x = \frac{u(1.00)}{u(E)}$$

$$P(A) = \frac{3/4(x)}{3/4(x) + 1} = \frac{3(3)}{3(3) + 4} = .69$$

Condition A:

$$\frac{u(.25)}{u(E)} = 1/4\ x$$

$$P(A) = \frac{1/2(x) + 3/8 \cdot 1/4(x)}{1/2(x) + 6/8(1/4x) + 1}$$

$$= \frac{19x}{22x + 32}$$

$$= .58$$

Condition B:

$$\frac{u(.25)}{u(E)} = 1/4x$$

$$P(A) = \frac{1/2(x) + 1/8(1/4\ x)}{1/2(x) + 1/4(1/4\ x) + 1}$$

$$= \frac{16(3) + 3}{18(3) + 32}$$

$$= .58$$

Condition 2:

$$P(A) = \frac{1/4(x)}{1/4(x) + 1} = \frac{x}{x + 4} = 3/7 = .43$$

THURSDAY TRIALS

Estimating the $\frac{u(1.00)}{u(E)}$ for each experimental condition:

Condition 1:

$$.59 = \frac{3/4\ x}{3/4\ x + 1}$$

$$3x = .59(3x + 4)$$

$$x = 1.9 = \frac{u(1.00)}{u(E)}$$

Condition A:

Let $\frac{u(1.00)}{u(E)} = 4(\frac{u(.25)}{u(E)})$

$$.49 = \frac{1/2\ x + 3/8(1/4\ x)}{1/2\ x + 6/8(1/4\ x) + 1}$$

$$19x = .49(22\ x + 32)$$

$$x = 1.9 = \frac{u(1.00)}{u(E)}$$

Condition B:

Let $\frac{u(.25)}{u(E)} = 1/4\ x$

$$.43 = \frac{1/2\ x + 1/8(1/4\ x)}{1/2\ x + 1/4(1/4\ x) + 1}$$

$$17x = .43(18x + 32)$$

$$x = 1.5 = \frac{u(1.00)}{u(E)}$$

Condition 2:

$$.36 = \frac{1/4\ x}{1/4\ x + 1} = \frac{x}{x + 4}$$

$$x = .36(x + 4)$$

$$x = 2.25 = \frac{u(1.00)}{u(E)}$$

Weighting each estimate by its sample size and averaging:

$$x = \frac{1.9(21) + 1.9(21) + 2.25(19) + 1.5(23)}{84}$$

$$= 1.9$$

Using this estimate to solve for the theoretical participation rates:

Condition 1:

$$P(A) = \frac{3/4(x)}{3/4(x) + 1} = \frac{3(1.9)}{3(1.9) + 4} = .59$$

Condition A:

Let $\frac{u(1.00)}{u(E)} = 1/4\ x$

$$P(A) = \frac{1/2(x) + 3/8(1/4\ x)}{1/2(x) + 6/8(1/4\ x) + 1} = \frac{19x}{22x + 32} = .49$$

Condition B:

Let $\frac{u(.25)}{u(E)} = 1/4\ x$

$$P(A) = \frac{1/2(x) + 1/8(1/4\ x)}{1/2(x) + 1/4(1/4\ x) + 1} = \frac{17(1.9)}{18(1.9) + 32} = .49$$

Condition 2:

$$P(A) = \frac{1/4(x)}{1/4(x) + 1} = \frac{1.9}{1.9 + 4} = .32$$

APPENDIX D

EXPERIMENTAL MATERIALS

Initial Briefing Session   Conditions 1 and 2

Experimenter #1:

We want to thank you for being able to join us today. We think you will find this study interesting and enjoyable. Let me introduce myself. I'm ________ and this is ________. Mr. _______ and Mr. ____ are also assisting in this study. We are members of a research team of social scientists interested in studying how individuals behave in groups. In particular, we are interested in understanding when people will <u>voluntarily choose to participate in a group to which they belong</u>.

In agreeing to be here today, each of you will become a member of a group. Studies on the group like the one you will belong to are going on both here and at other universities. Some of the groups are very complex; some are very simple. Some have very complex tasks to work on; some have very, very simple ones. <u>The group to which you will belong is one of the simplest and most rudimentary of all the groups</u> we are studying.

Let me tell you about your group. It consists of three members: a leader, yourself and another member. (None of you here now belongs to the <u>same</u> group, but you all belong to the same <u>kind</u> of group.) Your group will hold a series of meetings during the coming weeks of this term. Each meeting is simply an opportunity for you to vote for your particular preference on a group decision. The purpose of the voting is to arrive at a group decision. (PAUSE)

At every meeting, the choice will be between two alternatives --let's call them alternative #1 and alternative #2. IN EVERY CASE, alternative #1(2) is your preference. Every time your group chooses alternative 1 (2),you receive $1.00. Each time your group chooses the other alternative,2(1), you will receive a quarter. But if your group cannot arrive at a decision you will receive nothing.

Now, since there will be 10 meetings in all, you may receive as much as $10.00 during the next few weeks. (This is over and above the $1.50 we will pay you for your time today.) Even if your group were to decide against you consistently all 10 times--that is, even if your group were to choose alternative #2 (1) every time--you would still receive $2.50. Now, this is important: you receive this money whether or not you actually come to the meeting and vote.

Let me explain the details of how this will go. At each meeting, your group will choose between alternative #1 and alternative #2. Remember, alternative 1 (2) is the name of the alternative you want. The leader of your group will be present at every meeting and will always vote. The third group member may or may not come and vote as he chooses. You may or may not come and vote for 1 (2) as you choose. Only the leader MUST come and you are not the leader.

Now, whenever you group chooses alternative 1 (2), whether or not you were present, you receive $1.00. If you are not present, we will deliver your money to your dorm as soon as possible. If you are present, you receive your money immediately after you vote. Each time your group chooses alternative 2 (1), that is, agrees on the alternative which is NOT your preference, you receive a quarter. Again, you receive the quarter whether or not you voted. **ONLY IF YOUR GROUP CANNOT ARRIVE AT A DECISION WILL YOU RECEIVE NOTHING.** (Pause)

Let me explain in more detail how decisions are actually made. Each member of your group will have one vote. However, your group has a quorum rule for arriving at decisions. If the leader is the only one to come to the meeting, no decision can be made. **AT LEAST TWO MEMBERS OF YOUR GROUP MUST BE PRESENT TO VOTE BEFORE A DECISION CAN BE MADE.** If no decision is made, you receive nothing.

There is another way your group can fail to arrive at a decision--by a stalemate. If only two members of your group vote and they do not agree, your group is stalemated, no decision has been made for that particular meeting. You receive nothing whenever your group is stalemated. **(PAUSE)**

Imagine yourself in the following situation. Your group is holding a meeting to decide between two courses of action. You have decided already which of those two you want--we'll label that one alternative <u>1 (2)</u>. The other is alternative <u>2 (1)</u>; it is not your preference. If any two of the members vote for <u>2(1)</u>, you receive a quarter. If any two members vote for <u>1 (2)</u>, you receive $1.00. You receive the money whether or not you voted. If only one member of your group votes, the meeting does not have a quorum and no decision is made; you receive nothing. (It is not possible for no one to vote--the leader will always vote). If two members vote and one votes for <u>1 (2)</u> while the other votes for <u>2(1)</u>, the group is in a stalemate and you receive nothing. This is true even if you were the one voting for <u>1 (2)</u>. **YOU MUST DECIDE FOR YOURSELF WHETHER OR NOT TO GO TO THE MEETING AND VOTE.**

Is everything clear so far?

Now you will want to know something about the meetings. As I said earlier, the meetings are very brief. Each meeting consists simply in your coming here to Berkey sometime between 7 and 9 each Monday and Thursday evening and voting for #1 (2). So you can see that each meeting will take only a minute of your time. There will be one meeting every Monday night and one every Thursday night throughout the next few weeks. There will be ten meetings in all. You can come to Room 321 Berkey hall any time between 7 and 9 p.m. to vote. Suppose you come to the meeting tomorrow night. If you do, you will know at the time you vote how the other members of your group voted and you will receive any money you have coming to you right then. Suppose, however, you do not attend tomorrow night. If you don't, in a day or two you will find an envelope from us in your mailbox at the dorm. It will tell you who attended the meeting you missed and how they voted. It will also contain any money you have coming to you as a result of that voting. (PAUSE)

Now, when you came in, we gave you some envelopes. These are the envelopes which will contain reports of the meetings you do not attend. So that there will be sure to be no error, please print your name and campus address on each envelope. Thank you.

* *

Now let me give you some details about the other members of your group. In this study, we are interested in understanding groups in which the members do not always agree on what is the best alternative. In particular, we are interested in groups in which the leader often disagrees with the other members of the group. Consequently we are arranging it so that the leader of your group will always disagree with you. That is, HIS preference is alternative 2 (1). Your leader will attend every meeting. He will ALWAYS vote, and he will always vote for alternative 2 (1), his preference. Your coming to a meeting is automatically counted as a vote for #1 (2). Do you understand?

You will also want to know something about the other member of your group. Since we are interested in groups in which the leader disagrees with the other members of the group, the 3rd member of your group will have the same preference as you do. That is, his preference is also alternative 1 (2). He will vote for #1 (2) if and when he votes, just as you will. But, like you, he does not HAVE to vote. He will not attend every meeting. He will attend 3/4 (1/4) of the time. In order to bring this about we have arranged the following device. Look at this basket. In it we will put 3 (1) white marbles and 1 (3) yellow one(s). At every meeting, whether or not you attend, we will draw one marble from this basket. If the marble is white, it means that the other member in your group came to the meeting and voted for his preference and yours, alternative 1 (2). If the marble drawn is yellow, it means that the other member in your group did not attend that particular meeting. He did not vote. (He will never come and vote for alternative 2 (1). Do you understand? The chances are 3 (1) in 4 that the other member will come and vote with you against the leader.

Let me repeat. Each of you now belongs to a 3-person group. Your group will hold a series of meetings over the coming weeks of this term. There will be 10 meetings in all, one each Monday and Thursday night. At every meeting, you and the other group member may or may not come as you choose. Only the leader MUST come and vote. If you come to Room 321 Berkey Hall between 7 and 9 on any Monday or Thursday night, you will automatically be voting for your preference, alternative <u>1 (2)</u>. Whether or not you do come, we will draw one marble from the basket marked "Other Group Member." If the marble is white, it means that the other member came to the meeting and voted with you. If it is yellow, it means the other member did not come.

The leader will always be here and he will always vote for <u>2 (1)</u>.

Now, if the other member votes for <u>1 (2)</u> and you come and vote for <u>1 (2)</u>, you receive $1.00 regardless of the Leader's disagreeing vote. But if both you and the other member do not attend the meeting, no decision is made because there is no quorum, and you receive no money. If you come and vote for <u>1 (2)</u> and the other member does not come and the leader votes for <u>2 (1)</u>, a stalemate has occurred and you receive nothing. This is also true if you don't come, the other member does come and votes for <u>1 (2)</u> and the leader votes for <u>2 (1)</u>. You receive nothing due to a stalemate. <u>That is, if only one of you comes, the leader will surely disagree with him and you will receive nothing</u>.

You can see, now, that because of the unusual nature of your <u>particular</u> group, you cannot receive $1.00 unless you are present to vote for it. Similarly, there is no way the leader can get <u>his</u> preference, since it takes two agreeing votes to arrive at a decision. Because of the unusual nature of your group, the leader cannot ensure that alternative 2 (1) will be chosen, and consequently there is no way you you can receive $.25. This is not true for all of the groups we are studying. As we told you in the beginning, yours is a very unusual and rudimentary group.

Now I realize that this is a lot to remember so we will try out the procedure so that you can see what you can expect to happen at the meetings. We are about to run through some practice meetings for demonstration purposes only. On the board we have a chart for recording votes. Miss ______ will explain them to you. She will also indicate for each practice meeting what would have happened if the meeting had been a real one. In this way you will know what to expect over the coming weeks. Miss ________, will you conduct the practice meetings please?

* *

Experimenter #2:

We will now hold a practice meeting in which we will assume that you came to the meeting and voted for your preference--1 (2). I will indicate on the chart for practice meeting #1 that you voted.

You know that the Leader will always be present and will always vote against you. I will indicate here that he voted for 2 (1).

Now, will you please draw a marble from the basket marked "Other Group Member." Thank you.

READ ONE: a) the marble is white which means that the other member of your group also came and voted for 1 (2).

b) the marble is yellow which means that the other member of your group did not attend this meeting.

The results of this meeting, then, are that the leader voted for 2 (1), you voted for 1 (2), and the other member voted for 1 (2) or did not vote.

READ ONE: 1) Since you and the leader did not agree, the group is stalemated. If this had been a real meeting, you would have received nothing.

2) Since neither you nor the other member in your group voted, the meeting did not have a quorum and no decision was made. If this had been a real meeting, you would have received nothing.

3) Since you and the other member both voted for 1 (2), that is the group decision. If this had been a real meeting, you would have received $1.00 right now.

Is this clear? OK, we will now run through 4 more practice meetings just like this one.

REPEAT PREVIOUS SECTION FOUR TIMES.

Now we will total up what you would have received if these had all been real meetings. COMPUTE ON BOARD. If these had been real meetings, you would have received $_____. Do you understand?

We will now run through 5 practice meetings in which we will imagine that you did not come to vote. I will indicate by putting an "X" here that you were not present. SAME AS BEFORE EXCEPT:

READ ONE: a) the marble is white which means the other member of your group came and voted for 1 (2).

b) the marble is yellow which means that the other member of your group did not attend this meeting either.

The results of this meeting, then, are that the leader voted for 2 (1), you did not vote, and the other member voted for 1 (2) OR did not vote either.

READ ONE: 1) Since neither you nor the other member voted, the meeting did not have a quorum and no decision was reached. If this had been a real meeting, you would have received nothing.

2) Since the leader voted for his preference, alternative 2 (1), and the other member voted for alternative 1 (2), the group is stalemated. If this had been a real meeting, you would have received nothing.

Let's go through 4 more practice meetings like this one so that you will know what to expect. **REPEAT FOUR TIMES.**

As you can see, if these had all been real meetings, you would have received nothing. Because you and the leader consistently disagree, it is not possible for the group to select your preference unless you are at the meeting to vote for it. Similarly, there is no way the leader can get the group to select his preference because his vote alone is not binding on the group. Consequently, because of the very unusual nature of your particular group, there is no way you can receive a quarter. Do you understand?

* *

Experimenter #1:

I just want to say one more thing. Many of you may have participated in studies before. In some studies you are not always told all the details of the study. Sometimes social scientists tell you they are studying one thing when, in fact, they are really studying something else. **THIS IS NOT THE CASE IN THIS STUDY.** We are solely interested in studying when people will participate in a group to which they belong, particularly if the leader of the group is often in disagreement with the other members. We are not studying anything else. If you do not come to a meeting, we will draw from the basket for you just as we did here today. We will be fair and honest in reporting the results of the drawing to you. Are there any questions?

We want to thank you for coming out today. If you will come up here to any one of us, we will pay you $1.50 for your time today. We will also give you a notice which will remind you of the meeting place and times for your group during the coming weeks. You will see that the meetings will not be held in this room. Room 321 Berkey is just one floor below us here.

Initial Briefing Session Conditions A and B

Experimenter #1:

We want to thank you for being able to join us today. We think you will find this study interesting and enjoyable. Let me introduce myself. I'm __________ and this is ____________. Mr. _____ and Mr. _____ are also assisting in this study. We are members of a research team of social scientists interested in studying how individuals behave in groups. In particular, we are interested in understanding when people will <u>voluntarily choose to participate in a group to which they belong</u>.

In agreeing to be here today, each of you will become a member of a group. Studies on the group like the one you will belong to are going on both here and at other universities. Some of the groups we are studying are large; some are quite small. Some of the groups are very complex; some are very simple. Some have very complex tasks to work on; some have very, very simple ones. <u>The group to which you will belong is one of the simplest and most rudimentary of all the groups we are studying</u>.

Let me tell you about your group. It consists of three members:

a leader, yourself and another member. (None of you here now belongs to the same group, but you all belong to the same kind of group.) Your group will hold a series of meetings during the coming weeks of this term. Each meeting is simply an opportunity for you to vote for your particular preference on a group decision. The purpose of the voting is to arrive at a group decision. (PAUSE)

At every meeting, the choice will be between two alternatives --let's call them alternative A and alternative B. IN EVERY CASE, alternative A (B) is your preference. Every time your group chooses alternative A (B), you receive $1.00. Each time your group chooses the other alternative, B (A), you will receive a quarter. But if your group cannot arrive at a decision you will receive nothing.

Now, since there will be 10 meetings in all, you may receive as much as $10.00 during the next few weeks. (This is over and above the $1.50 we will pay you for your time today.) Even if your group were to decide against you consistently all 10 times--that is, even if your group were to choose alternative B (A) every time--you would still receive $2.50. Now, this is important: you receive this money whether or not you actually come to the meeting and vote.

Let me explain the details of how this will go. At each meeting, your group will choose between alternative A and alternative B. Remember, alternative A (B) is the name of the alternative you want. The leader of your group will be present at every meeting and will always vote. The third group member may or may not come and vote as he chooses. You may or may not come and vote for A (B) as you choose. Only the leader MUST come and you are not the leader.

Now, whenever your group chooses alternative A (B), whether or not you were present, you receive \$1.00. If you are not present, we will deliver your money to your dorm as soon as possible. If you are present, you receive your money immediately after you vote. Each time your group chooses alternative B (A), that is, agrees on the alternative which is NOT your preference, you receive a quarter. Again, you receive the quarter whether or not you voted. ONLY IF YOUR GROUP CANNOT ARRIVE AT A DECISION WILL YOU RECEIVE NOTHING. (Pause)

Let me explain in more detail how decisions are actually made. Each member of your group will have one vote. However, your group has a quorum rule for arriving at decisions. If the leader is the only one to come to the meeting, no decision can be made. AT LEAST TWO MEMBERS OF YOUR GROUP MUST BE PRESENT TO VOTE BEFORE A DECISION CAN BE MADE. If no decision is made, you receive nothing.

There is another way your group can fail to arrive at a decision--by a stalemate. If only two members of your group vote and they do not agree, your group is stalemated--no decision has been made for that particular meeting. You receive nothing whenever your group is stalemated. (PAUSE)

Imagine yourself in the following situation. Your group is holding a meeting to decide between two courses of action. You have decided already which of those two you want--we'll label that one alternative A (B). The other is alternative B (A); it is not your preference. If any two of the members vote for B (A), you receive a quarter. If any two members vote for A (B), you receive \$1.00. You receive the money whether or not you voted. If only one member of your group votes, the meeting does not have a quorum and no decision is made; you receive nothing. (It is not possible for no one to vote--the leader will always vote.) If two members vote and one votes for A while the other votes for B, the group is in a stalemate and you receive nothing. This is true even if you were the one voting for A (B). YOU MUST DECIDE FOR YOURSELF WHETHER OR NOT TO GO TO THE MEETING AND VOTE.

Is everything clear so far?

Now you will want to know something about the meetings. As I said earlier, the meetings are very brief. Each meeting consists simply in your coming here to Berkey sometime between 7 and 9 each Monday and Thursday evening and voting for A (B). So you can see that each meeting will take only a minute of your time. There will be one meeting every Monday and one every Thursday night throughout the next few weeks. There will be 10 meetings in all. You can come to Room 321 Berkey Hall any time between 7 and 9 p.m. to vote. Suppose you come to the meeting tomorrow night. If you do, you will know at the time you vote how the other members of your group voted and you will receive any money you have coming to you right then. Suppose, however, you do not attend tomorrow night. If you don't, in a day or two you will find an envelope from us in your mailbox at the dorm. It will tell you who attended the meeting you missed and how they voted. It will also contain any money you have coming to you as a result of that voting. (PAUSE)

Now, when you came in, we gave you some envelopes. These are the envelopes which will contain reports of the meetings you do not attend. So that there will be sure to be no error, please print your name and campus address on each envelope. Thank you.

* *

Now let me give you some details about the other members of your group. In this study we are interested in understanding groups in which the members do not always agree on what is the best alternative. Consequently, we are arranging it so that the other non-leader in your group will always disagree with you <u>if</u> <u>and</u> <u>when</u> <u>he</u> <u>votes</u>. That is, alternative <u>B (A)</u> is the name of HIS preference, and if he votes he will vote for <u>B (A)</u>. But he will not always vote. He will only vote <u>3/4 (1/4)</u> of the time. He will not come to <u>every</u> meeting. In order to bring this about, we have arranged the following device. Look at this basket. In it we will put <u>3 (1)</u> black marbles and <u>1 (3)</u> yellow one(s). At every meeting, whether or not you are there, we will draw a marble from this basket. If the marble is black, it means that the other member of your group came to the meeting and voted against you--that is, he voted for <u>B (A)</u>. (He will never come and vote for <u>A (B)</u>.) If the marble is yellow, it means that he did not come to the meeting. The chances are <u>3 (1)</u> out of 4 that a black marble will be drawn. Your coming to the meeting is automatically counted as a vote for <u>A (B)</u>.

Do you understand?

You will also want to know something about your leader. We are interested in groups which have a fair and neutral leader. Therefore, we will arrange it so that your leader will agree with you about half the time on what is best alternative for the the group--that is, he will vote for alternative <u>A (B)</u> about half the time. The other half, he will agree with the other member of your group and will vote <u>B (A)</u>. To ensure that you can count on this neutrality, we have a second basket. In this basket, we will put one white marble and one black one. At every meeting, whether or not you attend, we will draw one marble from this basket. If the marble is white, it means that the leader agreed with you and voted for A (B). If it is black, it means that he disagreed with you and voted for B (A). He will always be there and he will always vote. Do you understand?

Let me repeat. Each of you now belongs to a 3-person group. Your group will hold a series of meetings over the coming weeks of this term. There will be 10 meetings in all, one each Monday and Thursday night. At every meeting, you and the other group member may or may not come as you choose. Only the leader MUST come and vote. If you come to Room 321 Berkey hall between 7 and 9 on any Monday or Thursday night, you will automatically be voting for your preference--alternative A (B). Whether or not you do come, we will also draw one marble from the basket labeled "Leader." If the marble is black, it means your leader voted for B (A). If it is white, it means he voted for your preference, A (B). We will also draw a marble from the basket marked "Other Group Member." If that marble is black, it means that the other member came to the meeting and voted for B (A). If it is yellow, it means he did not attend the meeting.

Now, if the leader votes for A (B) and you come and vote for A (B), you receive $1.00 no matter what the other member does. If the leader and the other group member both vote for B (A), you receive a quarter whether or not you come in to vote. But, if both you and the other member do not vote, no decision is reached because there is no quorum, and you receive nothing.

If you come and vote for A (B), and the other group member does not come and the Leader votes for B (A), a stalemate has occurred, and you receive nothing. This is also true if you don't come, the other member does and votes for <u>B (A)</u> and the Leader votes for <u>A (B)</u>. You receive nothing due to a stalemate. Whenever either one of you comes while the other does not and the leader votes in disagreement, you get nothing.

I realize that this is a lot to remember and so we will try out the procedure so that you can see what you can expect to happen at the meetings. We are about to run through some practice meetings for demonstration purposes only. On the board we have a chart for recording votes. Miss _________ will explain them to you. She will also indicate for each practice meeting what would have happened if the meeting had been a real one. In this way you will know what to expect over the coming weeks. Miss _______, will you conduct the practice meetings?

* *

Experimenter #2:

We will now hold a practice meeting in which we will assume that you came to the meeting and voted for your preference-- <u>A (B)</u>. I will indicate on the chart for practice meeting #1 that you voted.

Now will you please draw a marble from the basket marked "Other Group Member." Thank you.

READ ONE: a) the marble is black which means that the other member of the group came and voted for B (A).

b) the marble is yellow which means that the other member of your group did not attend this meeting.

Now, will you draw a marble from the basket marked "Leader."

READ ONE: a) the marble is white which means that the leader also voted for A (B) and agreed with you.

b) the marble is black, which means that the leader disagreed with you and voted for B (A).

The results of this meeting, then, are that the leader voted for A (B), you voted for A (B), and the other member voted for B (A); or did not vote .

READ ONE: 1) Since you and the leader did not agree, the group is stalemated. If this had been a real meeting, you would have received nothing.

2) Since you and the leader agreed in your votes, alternative A (B) is the group decision. If this had been a real meeting you would have received $1.00 right now.

3) Since your leader and the other member both voted for B (A), that is the group decision. If this had been a real meeting, you would have received a quarter right now.

Is this clear? OK, we will now run through four more practice meetings just like this one. (REPEAT PREVIOUS SECTION FOUR TIMES.)

Now we will total up what you would have received if these had all been real meetings. (COMPUTE ON BOARD) If these had been real meetings, you would have received $_____. Do you understand?

Now we will run through 5 practice meetings in which we will imagine that you did not come to vote. I will indicate by putting an "X" here that you were not present. (SAME AS BEFORE EXCEPT:)

READ ONE: a) the marble is black which means that the other member in your group attended the meeting and voted for B (A).

b) the marble is yellow which means that the other member did not attend the meeting either. No vote is recorded.

READ ONE: a) the marble is white which means that the leader voted for A (B).

b) the marble is black which means that the leader voted for B (A).

The results of this meeting are that your leader voted for A (B), you did not vote, and the other member in the group voted for B (A); or did not vote either.

READ ONE: 1) Since the other two members of the group both voted for B (A), that is the group decision. If this had been a real meeting you would receive a quarter tomorrow in your mail box.

2) Since neither you nor the other member voted, no quorum has been met. If this had been a real meeting, you would have received nothing.

3) Since the leader voted for A (B) and the other member voted for B (A) and you did not vote, the group is stalemated. If this had been a real meeting you would have received nothing.

Let's go through 4 more practice meetings like this one so that you know what to expect. (REPEAT FOUR TIMES.)

Now we will total up what you would have received if these had all been real meetings. (COMPUTE ON BOARD) You would have received $________.

As you can see, because you and the other member in your group consistently disagree, it is not possible for the group to select A (B) if you are not at the meeting to vote for it. If you do attend any meeting, you and the leader constitute a quorum. It is possible for you to come to a meeting and vote and still receive nothing if there is a stalemate.

Is everything clear?

* *

I want to say one more thing. Many of you may have participated in studies before. In some studies you are not always told all the details of the study. Sometimes social scientists tell you they are studying one thing when in fact they are really studying something else. THIS IS NOT THE CASE IN THIS STUDY. We are solely interested in studying when people will participate in a group to which they belong, particularly if the leader of the group is neutral and if the group is often in disagreement. We are not studying anything else. If you do not come to a meeting, we will draw from the two baskets for you just as we did here today. We will be fair and honest in reporting to you the results of those drawings and will send you your money as soon as possible. Are there any questions?

We want to thank you for coming out today. If you will come up here to any one of us, we will pay you $1.50 for your time today. We will also give you a notice which will remind you of the meeting place and times for your group during the next week. You will see that the meetings will not be held in this room. Room 321 Berkey is just one floor below us here.

Meeting Reports: Conditions 1 and 2.*

MEETING TIMES: Each Monday & Thursday night,
any time between 7 & 9.

MEETING PLACE: 321 Berkey Hall

Your preference: 1 (2)
Other member's preference: 1 (2)-(He will vote about 3/4ths (1/4th) of the time.)
Leader's preference: 2 (1)-(He will always vote.)

Dear ______________________________,

Your group held a meeting last _______________. This is to inform you of the results of that meeting. The marble drawn from the basket marked "Other Group Member" was ____________, which means that the other member of your group ______________________________________ .
The Leader of your group voted against your preference; he voted for alternative 2 (1).

______1. Since neither you nor the other member voted, the meeting did not have a quorum, no decision was made, and you receive nothing.

______2. Since the Leader voted for his preference, alternative 2 (1), and the other member voted for alternative 1 (2), the group was stalemated. You receive nothing.

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* If the subject attended the meeting, he was given only the top portion of this form. The rest was presented verbally and constituted the total verbal interaction between the experimenter and subject.

Meeting Reports: Conditions A and B.*

MEETING TIMES: Each Monday & Thursday night, any time between 7 and 9.

MEETING PLACE: 321 Berkey Hall

Your preference: A (B)

Other member's preference: B (A)-(He will vote about 3/4ths (1/4th) of the time.)
The Leader is neutral (He will always vote.)

Dear ______________________,

Your group held a meeting last ______________. This is to inform you of the results of that meeting. The marble drawn from the basket marked "Other Group Member" was __________, which means that the other member in your group ______________________________________.
The marble drawn from the basket marked "Leader" was ____________, which means that the leader voted for alternative _________.

______1. Since the other two members of your group both voted for B, that is the group decision. Enclosed find your quarter.

______2. Since neither you nor the other member voted, the meeting did not have a quorum, no decision was made, and you receive nothing.

______3. Since the Leader voted for your preference, alternative A, and the other member voted for B, the group was stalemated. You receive nothing.

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* If the subject attended the meeting he was given only the top portion of this form. The rest was presented verbally and constituted the total interaction between experimenter and subject.

Data Recording Sheet

Preference
structure:

You: _____
L: _____
O: _____

Condition ______________. Date ___________

Name:
You: ________________
Other: ______________
Leader: _____________
Outcome: _____________________

Name:
You: ________________
Other: ______________
Leader: _____________
Outcome: _____________________

Name:
You: ________________
Other: ______________
Leader: _____________
Outcome: _____________________

Name:
You: ________________
Other: ______________
Leader: _____________
Outcome: _____________________

Name:
You: ________________
Other: ______________
Leader: _____________
Outcome: _____________________

Post Experimental Questionnaire

I want to thank you for coming in today, (name). As we told you on the phone, we are interested in knowing your reactions to our study. Before we talk about that, however, could you tell me what your major field of study is? and you are ______ years old, right?

1. OK, in general, what are your reactions to the study?

2. Have you ever participated in a study like this one before? (how like this one)

3. Have you ever heard or read about a study like this one in your courses? One that reminds you of this one? (how)

4. Do you know anyone else who participated in the study?

    a) Did you know (him, her) before the study began?

    b) Did you talk with (him, her) about the study at all?

        If yes: what kinds of things did you talk about? PROBE

        how often did you talk about it?

    c) Would you mind telling me who this was?

5. Did you ever discuss the study at all with anyone else?

    If yes: What kinds of things did you discuss? PROBE

    How often did you talk about the study?

    Was this person a friend, roommate, relative?

6. OK. Now think back to the first session when we first explained the study to you. What were your reactions to it at that time?

    Did your reactions change any as the study went along?

    What did you understand to be the nature of your group--can you describe to me how it was organized.

    Do you remember the name of your preference? The Leader's? And the other member's?

    Can you remember the various outcomes that were possible at each meeting, depending on whether you attended or not? PROBE

    Can you describe how each of those outcomes could happen.

    At the end of the very first session, was there anything you were confused about or didn't understand?

If yes: Are you still confused about that?

If no: Did you ever become confused about anything as the study went along?

OK, now let's talk about the meetings.

6. How many meetings did you attend? Do you remember what the results were of those meetings?

7. On the nights you did attend, where were you usually prior to coming over here? Did you usually walk over here? Alone? Where did you usually go from here after the voting?

8. When you did come to a meeting, how likely did you think you were to receive $1.00? A quarter? Nothing?

9. Now, let's see; you did not attend _____ meetings, right?

   Did you receive our report on the results of each of those meetings? Can you remember what the report said?

10. Were you surprised at the results of any of the meetings--both the ones you attended and the ones you missed. Why was that?

11. Did your expectations about the amount of money you might receive change at all as the study went along? In what way?

12. Did your FEELINGS about the study change in any way during the course of last week?

OK, Now I want to ask you just a few more very general questions.

13. Were you satisfied with the way in which decisions were made in your group? Why?

14. Would you change anything about the way your group operated if you were to have another series of meetings? What.

15. Would you have felt better about things if the leader's choice all by itself would have constituted a decision when you and the other member did not attend?

16. If you had the opportunity, would you choose to participate in the same group for another series of meetings? (Why - why not)

17. Do you know anything at all about any of the other groups we are studying?

18. What did you understand to be the purpose of this study?

19. Direct Question. Did you ever feel like you ought to come to the meetings?

BIBLIOGRAPHY

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Arrow, Kenneth J. Social Choice and Individual Values. New York: John Wiley & Sons, 1964.

Camilleri, Santo F., and Berger, Joseph. "Decision-Making and Social Influence: A Model and an Experimental Test," Sociometry, 30, no. 4 (December, 1967), 365-378.

Gamson, William A. Power and Discontent. Homewood, Illinois: The Dorsey Press, 1968.

Goldberg, Samuel. Introduction to Difference Equations. New York: John Wiley & Sons, 1961.

Homans, George C. Social Behavior: Its Elementary Forms. New York: Harcourt, Brace and World, Inc., 1961.

Lipset, Seymour M.; Trow, Martin; and Coleman, James. Union Democracy. New York: Doubleday and Co., 1956.

Luce, R. Duncan; Bush, R.R.; and Galanter, E. Handbook of Mathematical Psychology, Vol. III. New York: John Wiley & Sons, 1965.

Michels, Robert. Political Parties. Glencoe, Illinois: The Free Press, 1915.

Olson, Mancur. Logic of Collective Action. New York: Harvard University Press, 1965.