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THE BEHAVIOR OF LEGISLATIVE GROUPS: A METHOD OF MEASUREMENT

POLITICS and sociology must be behavioristic if they are to be quantitative in method. Attitudes and motives in themselves offer a valid subject of scientific inquiry, but they are not susceptible of measurement, and the subjective bias of the investigator is invariably present to cast doubt upon his conclusions. It is only when opinions and attitudes find expression in conduct that they yield to exact analysis. The first task in creating a science of politics, therefore, is a search for behavioristic materials representative of the intangible subjective elements of political activity. The second task is to devise quantitative methods for measuring these materials.

The most tangible and measurable units of political behavior are *votes*. They are tangible because simple and precise. They are measurable, for although each is really a *gross measure* of opinion, the value of which may differ widely in different individuals, they are nevertheless assumed to have equal value and are counted and recorded officially.[1] The determination of popular attitudes by an analysis of popular votes upon a variety of issues would be the preferred method if the data were available. A few such analyses of referendum votes have been made.[2] Unfortunately for this purpose the number of issues that have been acted upon by referendum is still small. Moreover, an essential requisite is lacking in any popular vote conducted over a wide area, namely, identification of the individual votes with the individual voters.

Election returns in the aggregate—the only form in which they are usually available—must be dissected if they are to be

[1] *Cf.* the writer's note, "The Political Vote as a Frequency Distribution of Opinion", *Journal of the American Statistical Association*, March, 1924.

[2] *Cf.* for example, "The Political Thought of Social Classes", by William F. Ogburn and Delvin Peterson, POLITICAL SCIENCE QUARTERLY, Vol. XXXI, pp. 300–317; "The Referendum in Washington", by Stuart A. Rice, *Proceedings of the National Conference of Social Work*, 1923, pp. 508–510.

of value in estimating the forces of opinion at work in the electorate. Just as biological science made no progress in discovering the laws of heredity until it dealt with unit characters, political statistics will be meaningless as refined tools or products of measurement until they enable the investigator to distinguish the votes of rural, urban and small-town dweller; Protestant, Catholic and Hebrew; farmer, laborer and capitalist; native and foreign-born in their numerous varieties. Intersecting groups such as these mould the *mores* of individuals attached to them. They determine those characteristic, habitual and largely unconscious individual attitudes that have their resultant in "public opinion" and the "popular verdict at the polls". Hence to understand the result of an election one must understand the groups in the electorate and the part played by each as a causal factor in the result. But as already pointed out, the data from which this part might be measured are largely unavailable.

A similar difficulty is not encountered in dealing with representative bodies. Roll-call votes in Congress and American legislatures are cast openly and recorded officially. But may the votes of legislators be regarded as representative of the opinions of those who select them? The correlation would obviously be imperfect, and might not even be high. Yet with full cognizance of the numerous influences tending to deflect the legislator from a normal expression of his personal attitudes, the writer contends that he is representative of the groups in the electorate to which he belongs—at least to a degree. He is representative, first, because voters tend to select men of their own "kind" to office, even though the similarity in kind may be based in the voter's "identification" of himself with the social, economic or intellectual attributes of the office-holder. The legislator is representative in a second sense, based upon the first, because he responds to legislative issues on the whole in about the same manner as would his fellow group members in the constituency. However amenable to "influence" he may be, there is a constant "strain" in the legislator's behavior toward consistency with the *mores* of his various groups. In a sufficiently large number of cases,

this strain toward consistency with his social heritage is certain to affect any numerical indices of the legislator's behavior that may be devised. Measurements of group behavior in legislative bodies, therefore, are regarded by the writer as indicative of the attitudes of corresponding groups in the electorate. Objective tests of these *a priori* assumptions are possible and should be undertaken. Regardless of their validity, however, measurements of legislative behavior have a value in themselves, not only to the theorist but to the practical politician as well. This will be apparent in the pages that follow.

The present paper, then, has two general aims: first, to present a method for the measurement and comparison of the voting behavior of groups in legislative bodies; second, to illustrate the method by presenting the results of analysis of the cohesion and comparative resemblance of certain parties and blocs in the New York State Assembly of 1921 and in the United States Senate of the Sixty-eighth Congress. As a subordinate aim the writer hopes to add precision to a number of terms in common use in political discussion, such as "cohesion", "swing" and party "wing".

The first test that any legislative group must meet concerns its *cohesion*. Are the members of Group A in their voting behavior more like each other than are the members generally of the more inclusive Group B which includes not only A but non-A individuals as well? For example are the Republican members in a state senate more alike in their votes than are the members of the senate generally? If so, it may be inferred that they are more like-minded and the Republican group may be called more *cohesive* than the senate as a whole. Similarly it may be asked whether the Republican senators are more or less cohesive than are the Democratic senators. Or take a question still more definite: Was the tri-partisan "progressive" or LaFollette bloc in the Senate of the Sixty-eighth Congress more or less cohesive than were the various senatorial groups included under each of the formal party designations?

The writer has been able to obtain precision in answering such questions by the aid of what he has called an *index of cohesion*. This index is based upon the theory of probability.

If roll-call votes were cast according to pure chance, the most probable result in the case of any roll call would be a division in which fifty per cent of the members voted affirmatively and fifty per cent voted negatively. It is evident that the cohesion within the entire body in such a case would be *nil*. Hence a measure of cohesion will be obtained if we determine the degree of departure from the most probable chance distribution of votes, toward complete uniformity of action, i. e., a roll call in which all members vote alike. Referring only to the percentage of affimative votes for the sake of convenience, it is apparent that zero cohesion (0.0) will be indicated by a roll call in which fifty per cent of the members vote affirmatively. Absolute cohesion (100.0) will be indicated whenever the group is unanimously either for or against a measure; i. e., when it votes either 100 per cent or 0 per cent in the affirmative. Further, an index of cohesion intermediate between 0.0 and 100.0 will be determined by the degree to which the percentage of affirmative votes departs from 50.0 in either direction toward 0.0 or 100.0. For example, when the votes of the group on a given measure are 30 per cent in the affirmative or 70 per cent in the affirmative, the index of cohesion will in both cases be 40.0, for in both there is a 20/50 or 40 per cent departure from 0.0 cohesion toward 100.0 cohesion. When the index of cohesion upon a series of roll calls is to be found, the writer has employed the arithmetic mean of the indices derived for the various individual roll calls in the series.

Allied to the problem of group cohesion, and likewise requiring measurement, are questions of the extent to which various groups are alike or unlike in their voting responses to political issues. It is useful not alone to the political scientist but to many laymen to know whether farmers and workingmen, when thrown together in a state legislature, tend to be in mutual opposition or in mutual support. If they tend to be in mutual opposition with respect to prohibition and its enforcement (as they do) are they likewise in opposition with regard to labor legislation or political reform? Or, to use the former illustration, was the LaFollette bloc in the Sixty-eighth Congress in

closer affiliation with the regular Republican party or with the regular Democratic party? In either case, how much closer? Answers to such questions based on a "hunch" are unsatisfactory. Measurements are needed.

To place beside his index of cohesion within groups, therefore, the writer has derived an *index of likeness between groups*. The possible range of this index is likewise from 0.0 to 100.0. If, for example, all Republicans in a legislative session vote affirmatively on a given roll call while all Democrats vote negatively, it is obvious that the behavior of the two groups, so far as it can be expressed by votes, is absolutely dissimilar. One is 100 per cent affirmative, the other 0 per cent affirmative. The arithmetic difference between the percentages of affirmative votes in the two cases is 100.0. This figure thus gives an index of absolute difference in voting behavior between the two groups. If, on the other hand, Republicans and Democrats *both* divide, at the same time, 50-50, or 70-30, or 85-15, the responses of the two groups, as groups, will in each case be the same. It is to be inferred in such cases that the distribution of votes is determined by factors unassociated with party divisions, and Republicans and Democrats may be said to vote *alike* on the issue at hand. The arithmetic difference between the respective percentages of affirmative votes in each such case will be 0.0, and the complement of this figure, 100.0, will be the index of likeness. Thus the complement of the arithmetic difference between the percentages voting in the affirmative in each of two groups gives an index of likeness between them, so far as their voting behavior is concerned. The index of likeness upon a series of roll calls may again be regarded as the arithmetic mean of the indices derived for the separate roll calls in the series.

The use of the two indices will now be illustrated, first, by an analysis of roll-call votes in the New York State Assembly of 1921. This was the year of "normalcy" at its height. A number of "Lusk" bills, together with the disqualification of a Socialist member, were carried with ease by an overwhelming Republican majority in the New York Legislature.

The Assembly was composed at the outset of 150 members.

Eight groups were selected for analysis and comparison as a result of preliminary study of the roll calls recorded in the Assembly *Journal*. These were: The Assembly as a whole, the Republicans as a whole, the New York City Republicans, the "Up-State" Republicans, the Democrats, the Socialists, the Farmers and the Labor members. It so happened that all of the members classified as Farmers or Laborites were also Republicans. Those placed in these categories were members who met certain objective documentary tests concerning occupation and residence. All of the Democrats but two were from New York City. We may classify the members as indicated in the two following tables in order to show the relationships existing between the several groups:

TABLE I

COMPOSITION OF THE NEW YORK ASSEMBLY, 1921, BY PARTIES AND TWO SELECTED OCCUPATIONS

Republicans		119
Farmers	27	
Laborites	5	
Unclassified	87	
Democrats		28
Socialists		3
Assembly as a whole		150

TABLE II

COMPOSITION OF THE NEW YORK ASSEMBLY, 1921, BY PARTIES AND LOCALITIES

Up-State Members		88
Republicans	86	
Democrats	2	
New York City Members		62
Republicans	33	
Democrats	26	
Socialists	3	
Assembly as a whole		150

Of 1296 roll calls taken during the session, all but 255 were unanimous. Out of an estimated total of 175,000 votes cast, only 7,595 or 4.3 per cent were cast in the negative. The study has been confined, therefore, to roll calls in which there were six or more opposing votes cast against the majority

action.[1] The results of the study are presented in Tables III and IV, which follow.

TABLE III

INDICES OF COHESION WITHIN VARIOUS GROUPS IN THE NEW YORK ASSEMBLY, 1921

1 Group	2 Number in group	3 169 Roll Calls with 6 or more opposing votes	4 94 Roll Calls on "State Issues"	5 59 Roll Calls on New York City Issues	6 8 Roll Calls on Prohibition
Assembly as a whole.....	150	51.4	44.9	.....	15.6
Republicans	119	74.8	66.0	....	44.9
Up-State Republicans	86	87.9	80.7	96.5	89.9
New York City Republicans	33	65.5	63.9	62.1	68.7
Democrats	28	77.4	73.0	79.6	100.0
Socialists.....	3	94.0	94.1	.....	71.3
Farmers	27	91.2	85.6	.....	100.0
Laborites.....	5	68.0	59.9	.....	12.5

The number of groups of assemblymen whose votes were analyzed might have been extended to include categories based on religious or other lines. Similarly, the roll calls included in the study, 169 in number, might have been classified into an indefinite number of subordinate categories. Three sub-classes of measures only are shown in Table III. "State issues" include all measures other than those of purely local character. Among 76 roll calls affecting single municipalities or counties, 59 were selected which bore upon the affairs of New York City alone. Thus roll calls upon "state issues" and "New York City issues" are referred to in columns 4 and 5, respectively.

[1] The high degree of like-mindedness indicated by the large proportion of unanimous roll calls is illusory owing (a) to constitutional specification of the occasions on which roll calls must be taken in the passage of a measure, (b) to the legislative device for evading the constitution in this respect known as the "short roll call". A short roll call is almost invariably indicated when the recorded number of votes in opposition to the majority action is ten or less. To be recorded in opposition on a short roll call, the member must rise in his seat and so request after the presumptive roll has been taken. For a precedent for disregarding unanimous and near-unanimous roll calls, *cf.* A. Lawrence Lowell, "The Influence of Party upon Legislation in England and America" *Annual Report of the American Historical Association*, Vol. I, 1901, pp. 321–542.

In column 6 are shown the indices of cohesion for 8 roll calls affecting the issue of prohibition and its enforcement. The same classification of measures is employed in Table IV.

TABLE IV

INDICES OF LIKENESS BETWEEN VARIOUS GROUPS IN THE NEW YORK ASSEMBLY, 1921

1 Groups Compared	2 169 Roll Calls with 6 or more opposing votes	3 94 Roll Calls on "State Issues"	4 59 Roll Calls on New York City Issues	6 8 Roll Calls on Prohibition
Whole Assembly and Farmers....	78.8	76.9	.....	58.1
Whole Assembly and Laborites...	86.6	85.4	.....	95.1
Whole Assembly and Republicans.	87.3	88.1	.....	85.3
Whole Assembly and Democrats..	49.5	53.0	.....	41.9
Whole Assembly and Socialists...	48.9	.....	.....	54.6
Republicans and Farmers.....	90.4	88.5	.....	72.5
Republicans and Laborites	88.3	86.4	.....	83.8
Farmers and Laborites.....	84.8	79.9	.....	60.2
Socialists and Laborites.....	52.9	.....	.....	56.1
New York City Republicans and Up-State Republicans	74.4	70.8	75.5	20.6
New York City Republicans and Democrats	53.0	60.6	50.9	84.5
Farmers and Democrats	.....	.....	.....	0.0
Farmers and Socialists	36.5	.....	.....	12.4
Republicans and Democrats	37.1	.....	.....	28.0

A number of conclusions might be drawn from Tables III and IV. Still others might be disclosed if a larger number of the possible comparisons of group likeness were carried through in Table IV. A few of the more significant points indicated in the tables will serve to illustrate the utility of the method:

1. The New York City Republicans, in effect, formed an intermediate party group or bloc between the Up-State Republicans and the Democrats. When all measures are taken together, this bloc of New York City Republicans was more like its Up-State party associates (74.4) than it was like the Democrats (53.0). Yet on such an issue as prohibition, its likeness with the Up-Staters was represented by the index 20.6 as compared with an index of 84.5 between itself and the

Democrats. In cohesion, the New York City Republicans were low—65.5 as compared with 87.9 for the Up-State Republicans and 77.4 for the Democrats. This fact is suggestive of a conflict between party loyalty on the one hand, tending toward association with the Up-State Republicans, and sectional loyalty upon the other, tending toward association with the Democrats, all but two of whom represented New York City districts.

2. The Republican farmers formed a highly cohesive group (91.2) within the relatively cohesive group of Up-State Republicans (87.9). It is apparent that the common occupation is a cohesive influence. The cohesion of farmers was exceeded only by that of Socialists (94.0) who were represented a portion of the time by only two members.

3. The laborites showed relatively low cohesion (68.0) although this was probably the result of their division between the Up-State and New York City wings of the Republican party. The Republican laborites showed considerably more likeness to the Socialists (52.9) than did the Republican farmers (36.5).

4. The several groups are arranged in the same order with respect to their cohesion whether all roll calls entering the study or only those concerning "state issues" are considered. In each case, however, the cohesion of the group is less in the case of "state issues". We may infer that local issues, particularly those affecting the city of New York, promote a more uniform response within each group than do issues of more general state-wide significance. It is probable that the long-standing quarrel between the city and the Up-State districts tends to produce a more habitual response in each group whenever the issue is presented, whereas "state issues" are more likely to be considered upon their merits and hence produce a more varied response in each group.

5. Up-State Republicans show almost perfect cohesion (96.5) on the 59 roll calls specifically affecting New York City. They are considerably more united upon these matters than upon any other type of measures segregated, and considerably more united than are the Democrats (79.6). Hence it may be

said that common attitudes regarding the affairs of New York City constitute the outstanding characteristic of the voting behavior of the Up-State Republicans. The New York City Republicans, on the contrary, occupy with regard to city issues the same intermediate position as a separate but not very cohesive group that they occupy upon questions generally.

6. The Assembly was more sharply divided on the issue of prohibition than on legislative issues as a whole. There were eight roll calls taken in which this issue was mainly involved. In each case Farmers (who were all Republicans) and Democrats were completely in agreement among themselves, but in *opposite directions*. That is, the index of likeness between Farmers and Democrats on this type of issue was 0.0.

Without further inferences from Tables III and IV, the writer hastens to a second illustration of the use of the two indices that have been described. This is found in an analysis of the votes of the so-called "progressive" or LaFollette bloc on the first fifty-four senatorial roll calls in the Sixty-eighth Congress.

The formal party affiliations of United States senators are of record. Their affiliations or sympathies with conservative, progressive or other blocs are not. On the basis of a variety of criteria, such as attendance at conferences of "progressives", the writer has segregated the following list of thirteen senators in the Sixty-eighth Congress, composed of six Republicans, five Democrats and two Farmer-Laborites: LaFollette, Frazier, Brookhart, Norris, Ladd and Borah, Republicans; Wheeler, Dill, Sheppard, Walsh of Massachusetts and Ashurst, Democrats; Shipstead and Johnson of Minnesota, Farmer-Laborites. For convenience this group of thirteen senators may be called "radical". Similarly, a larger list of twenty-two senators who may be termed "progressive" has been formed by the addition to the first thirteen of nine others with a reputation for progressive leanings, who failed, however, to meet the first criteria of selection. The "progressive" group thus includes the "radical". The various indices of cohesion that have been derived are shown in the following table:

TABLE V

COHESION OF VARIOUS SENATORIAL GROUPS IN THE SIXTY-EIGHTH CONGRESS

Group	First 54 Roll Calls taken in the Sixty-eighth Congress	47 Roll Calls derived by omitting 7 of comparative unimportance
The Senate as a whole	44.2	46.5
Democrats (all so listed)	63.6	63.1
Republicans (all so listed)	70.0	66.3
"Radical" group of 13	66.6	71.0
"Progressive" group of 22	62.7	67.2

It is apparent from Table V that when all fifty-four roll calls were considered, the "radical" and "progressive" blocs were slightly less cohesive than the Republicans, including under the latter term all who gave this as their party designation in the Congressional Directory. The "radical" bloc, however, was more cohesive than the Democrats. Among fifty-one non-unanimous roll calls, the "radical" bloc was more cohesive than either Republicans or Democrats in the case of eighteen, and more cohesive than (or equally cohesive as) at least one of these parties in the case of twenty roll calls additional, leaving thirteen or 25.5 per cent in which both parties exceeded the "radical" bloc in cohesion.

But among the fifty-four roll calls, some were of greater importance than others. In the last column of Table V will be found the indices of cohesion when seven roll calls upon such matters as the award of individual war pensions and the election of a doorkeeper to the senate were eliminated. In this column it will be discovered that if the more important roll calls alone be considered, both "radical" and "progressive" blocs were more cohesive than either of the parties. It should be remembered that the insurgent tendencies of the progressive and radical senators tend to diminish the cohesion of the formal party organizations. It is probable, though it has not been determined, that the radicals were not so cohesive as the "regulars" in either of the old parties when taken by themselves. Nor has the writer employed the index of likeness to

determine whether the radicals and progressives were more closely aligned to the Republican or the Democratic group, for it is hardly to be questioned that their affiliations were with the latter.

The illustrations that have preceded have been comparatively simple because they did not involve as variables the factors of party affiliations themselves. But suppose it is desired to compare the cohesion of two groups cutting unequally across party lines: for example, the cohesion of farmers and laborites when all farmers are Republicans while laborites are found in both parties. A higher index of cohesion among farmers in such a case would not be significant, for the major vote-determining influences are associated with party affiliation. At least one practicable means of eliminating the party variable when it is thought to invalidate the result is by the method of classification. Republican farmers may be compared with Republican laborites or with Democratic laborites, but not with a bi-partisan labor group. The indices of cohesion and of likeness gain significance (when the party variable is held constant in this manner) by comparison with the indices that would be *probable* on the basis of party affiliations alone. Thus it would be "expected" that the index of likeness between Republican farmers and Democratic laborites would equal the index of likeness between all Republicans and all Democrats if farmers and laborites constituted *random samples* of their respective parties. If in fact the former index is the smaller it is clear that farmers and laborites have a tendency to differ in their votes *relative to their party affiliations*, i. e., more than their party affiliations would call for. Similarly, the cohesion of Group A in Party X relative to the cohesion of X, when compared with the cohesion of Group B in Party Y relative to the cohesion of Y, will indicate whether A or B is the more cohesive relative to party affiliations.

When subordinate groups A and B are both wholly affiliated with Party X, a comparison of their respective indices of cohesion may be made directly. But it is not so simple to ascertain whether they are tending toward like or unlike voting behavior. At this point precision must be sought for the con-

cept of "swing". Do A and B tend to "swing" in the same or in opposing directions within the common Party X? Are they, that is, in opposing wings or in the same wing of that party? If the number within the party be large as compared with the numbers in the subordinate groups, the "swing" may be safely determined by comparing the percentage of affirmative votes in the party group as a whole with the respective percentages of affirmative votes in the two subordinate groups. For example, in one roll call on the question of prohibition enforcement in the Pennsylvania House of Representatives of 1919 the Republican group with 175 members voting was 51.4 per cent in the affirmative on a particular presentation of the issue. Of seven Republican farmers, one, or 14.3 per cent was in the affirmative, while of eight Republican laborites, all or 100.0 per cent were in the affirmative. It will be clear that farmers and labor members, as occupational groups, "swung" to opposing wings of the common Republican party on this particular issue.

Similarly, it is found that the farmer and labor groups in the New York Assembly session analyzed above tended to swing to opposite wings of the common Republican party group in the larger number of roll calls taken. For reasons which need not be related here, exact measurement of the amount of swing is difficult, but a mere summation of the number of cases in which the swing is in the same direction as compared with the number in which it takes place in opposing directions, will usually suffice for the inquiry in hand.

Close adherence to the technique of comparing an actual index of cohesion or likeness with the index that would be expected on the basis of party affiliations alone, will provide the student with answers at once logical and quantitative to many common problems of group action in politics—problems now being approached by intuition and impression; in other words, on the basis of "hunch".[1]

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[1] For a more thorough examination of the principles and limitations of the method he has sketched, as well as for further illustrative material, the writer must refer to chapter vi and the appendices of his study, *Farmers and Workers in American Politics*, Columbia Studies in History, Economics and Public Law (New York, Long-