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Equal Protection in the Key of Respect Representation and the Weighted Voting Alternative

Equal Representation and the Weighted Voting Alternative

Only seven years ago, the Supreme Court held for the first time that the reapportionment[1] of a legislature is a justiciable issue.[2] Since then, the Court has applied its evolving standards for reapportionment not only to Congressional districts,[3] but to both houses of the state legislatures[4] and, most recently, to local bodies which exercise "general governmental powers over an entire geographical area."[5]

Elected officials at each of these political levels have objected to the only plan of reapportionment which the Supreme Court has clearly held constitutional—single-member districts of equal population—because it requires constant redistricting, a process which is expensive, time-consuming and disruptive of the constituencies among whom they have successfully campaigned.[6]

This Note analyzes weighted voting, which legislators find the most attractive of the plans proposed as alternatives because it eliminates the need for redistricting and because, in mathematically refined form, it has been held constitutional several times in the state courts.

I.

In the earlier reapportionment decisions after *Baker v. Carr* the Supreme Court spoke of ensuring that "one man's vote . . . is to be worth as much as another's."[7] It was left ambiguous whether this phrase meant that all voters should have an equal chance to determine

1. The term "re-apportionment," though properly denoting the "determination upon each decennial census of the number of representatives which each state shall elect," BLACK'S LAW DICTIONARY 129 (4th ed. 1951), has come to be synonymous with "re-districting," the actual drawing of lines to establish electoral areas. Kilgarlin v. Martin, 252 F. Supp. 404, 410 n.1 (S.D. Tex. 1966) *rev'd sub. nom.* Kilgarlin v. Hill, 386 U.S. 120 (1967). In this Note, the two terms are used interchangeably to indicate the process of delimiting electoral districts.
2. Baker v. Carr, 369 U.S. 186 (1962).
3. Wesberry v. Sanders, 376 U.S. 1 (1964).
4. Reynolds v. Sims, 377 U.S. 533 (1964).
5. Avery v. Midland County, 390 U.S. 474, 485 (1968).
6. Challenges through litigation magnify these problems. Litigation concerning redistricting in New York's Westchester County, for example, has been in the State courts no fewer than nine times in the past three years. Town of Greenburgh v. Bd. of Supervisors of Westchester County, 49 N.Y. Misc. 2d 116, 266 N.Y.S.2d 993 (Sup. Ct. 1966); 51 N.Y. Misc. 2d 168, 272 N.Y.S.2d 906 (Sup. Ct. 1966); 53 N.Y. Misc. 2d 88, 277 N.Y.S.2d 885 (Sup. Ct. 1967); 55 N.Y. Misc. 2d 1031, 287 N.Y.S.2d 154 (Sup. Ct. 1968); unreported decision of Supreme Court, Westchester County, August 23, 1967; unreported decision of Supreme Court, Westchester County, May 21, 1968, *aff'd* 30 App. Div. 2d 708, 292 N.Y.S.2d 334 (1968); 57 N.Y. Misc. 2d 1008, 293 N.Y.S.2d 957 (Sup. Ct. 1968), *rev'd with instructions to vacate as moot*, 23 N.Y.2d 732, 296 N.Y.S.2d 373, 244 N.E.2d 63 (1969).
7. Wesberry v. Sanders, 376 U.S. 1, 8 (1964).

the outcome of an election or that all voters should benefit equally from the services of their representatives, or both.

The Court stressed the first rationale when it spoke in *Gray v. Sanders* of protecting citizens from the debasement or dilution of their vote.[8] *Reynolds v. Sims*, however, seemed to emphasize both rationales when it included, under the formula of "equal representation for equal numbers of people," the right of all citizens both to have their votes weighted equally and to be equally represented in the legislature.[9]

In *Reynolds*, as in most of the reapportionment cases to reach the Supreme Court, the legislature was composed of single-member districts whose representatives cast one vote.[10] In these cases, the facts did not force the Court to clarify the ambiguity; requiring that equal weight be given to the vote of each citizen was tantamount to ensuring equal representation for each citizen in the legislature.

The Court maintained a strict requirement by demanding that the districts be "as nearly of equal population as is practicable."[11] It compelled redistricting even in a case where the greatest disparity in population between districts was under six per cent, and refused in principle to set tolerance limits within which deviations from "precise mathematical equality" would be considered *de minimis*, saying that "to consider a certain range of variances *de minimis* would encourage legislators to strive for that range rather than for equality as nearly as practicable."[12]

The Court has said in dicta that deviations will be permitted when they are unavoidable or justifiable by the state, but it has suggested that it would find unavoidable only those which result when the most recent Census is out-of-date.[13] It has never held a deviation justifiable, even for reasons of geographical compactness, existing political boundaries, or economic or historic interests.[14] By making the requirement so strict, the Court has caused each legislature with single-member districts whose representatives cast one vote to undergo redistricting, both immediately, and, presumably, after each future Census. To avoid

8. 372 U.S. 368 (1963).
9. 377 U.S. 533, 560-61, 576 (1964).
10. *E.g.*, Wells v. Rockefeller, 394 U.S. 542 (1969); Kirkpatrick v. Preisler, 394 U.S. 526 (1969); Wesberry v. Sanders, 376 U.S. 1 (1964); Baker v. Carr, 369 U.S. 186 (1962).
11. Wesberry v. Sanders, 376 U.S. 1, 7 (1964), re-affirmed in Kirkpatrick v. Preisler, 394 U.S. 526 (1969).
12. Kirkpatrick v. Preisler, 394 U.S. 526, 531 (1969).
13. *Id.* at 535. *Cf. id.* at 536-41 (Fortas, J., concurring).
14. Wells v. Rockefeller, 394 U.S. 542 (1969); Kirkpatrick v. Preisler, 394 U.S. 526 (1969).

this shuffle of boundaries, legislators have devised alternative plans which test the Court's ambiguous position about equal representation.

With one set of plans, they have varied the number of representatives per district, using multi-member, at-large or floterial districts.[15] With the other, they have varied the number of votes per representative, using weighted or fractional voting.[16] The first set at least prevents the initial redistricting from drastically disrupting the present system; the second eliminates altogether the need to redistrict.[17]

The Court in *Reynolds*, referring specifically to multi-member districts,[18] indicated that the first set of alternatives might be held constitutional. Although later cases continued to speak of districts of equal population as the goal,[19] the Court has recently upheld the use of multi-member districts in the state legislatures of Georgia and Hawaii, despite the charge that they permit political minorities to be submerged.[20] The principle embodied in these cases is still that all voters must have an equal chance to determine the outcome of an election,[21] although its application is more complicated than in cases of single-member districts. The Court allows more representatives per district,

15. For a concise description of the various plans, *see* Weinstein, *The Effect of Federal Reapportionmnt Decisions on Counties and Other Forms of Municipal Government*, 65 COLUM. L. REV. 21, 40-41, 47 n.105 (1965). A floterial district has been defined as a "legislative district which includes within its boundaries several separate districts or political subdivisions which independently would not be entitled to additional representation but whose conglomerate population entitles the entire area to another seat in the particular legislative body being apportioned." Davis v. Mann, 377 U.S. 678, 686 n.2 (1964). *See also* R. DIXON, DEMOCRATIC REPRESENTATION, 461, 508-12 (1968).

16. *See generally* Weinstein, *supra* note 15, at 41-46; DIXON, *supra* note 15, at 516-20.

17. This follows from the irrefutable assumption that it is possible to divide votes, but not people. For example, if two single-member districts begin with ten thousand voters and one vote per representative each, and the population of one district increases by half, weighted voting can compensate precisely by granting its representative 1.5 votes. With a multi-member system, the allocation cannot be made precise without redistricting; whether or not another representative is added, the system will either under- or over-represent the larger district by one-third. It would be possible to achieve precision by multiplying the ratio of the districts' populations until it can be expressed in whole numbers, and according each district a corresponding number of representatives (here, three and two), but in all except the simplest situations, such a procedure would vastly enlarge the size of the legislature.

18. "One body [of a bicameral legislature] could be composed of single-member districts while the other could have at least some multimember districts." 377 U.S. at 577.

19. "The overriding objective must be substantial equality of population among the various districts," 377 U.S. at 579, quoted with approval in Fortson v. Dorsey, 379 U.S. 433, 436 (1965). *See also* Kirkpatrick v. Preisler, 394 U.S. 526, 530-31 (1969) ("the 'as nearly as practicable' standard requires that the State make a good-faith effort to achieve precise mathematical equality"); Avery v. Midland County, 390 U.S. 474, 484-85 (1967) ("We hold today . . . that the Constitution permits no substantial variation from equal population in drawing districts . . .").

20. Burns v. Richardson, 384 U.S. 73 (1966) (Hawaii); Fortson v. Dorsey, 379 U.S. 433 (1965) (Georgia). The Court in each instance refused to consider claims of possible nullification of the voting strength of large minority groups, classifying such charges, in the absence of clear factual proof, as "highly hypothetical assertions." 379 U.S. at 437.

21. *See* p. 312 *supra*.

but only if all districts have the same ratio of representatives to population. So, a district with three representatives will be allowed so long as it has precisely three times the population of the single-member district, since a one-third chance of electing three representatives is the equivalent of one chance of electing one.

The only Supreme Court decision on floterial districts affirmed a district court order compelling reapportionment, by reference to the same principle.[22] The plan was held invalid because the floterial district was composed of a large district which elected three representatives of its own plus a county one-seventh its size which elected none, and thus the voters in the county had a smaller chance of electing a legislator than those in other districts.[23] Presumably, had the districts been of equal size and the ratio of representatives to population in the entire floterial district been the same as the ratio outside the district, the plan would have been upheld.[24]

The Court has indicated that both multimember and floterial districts are acceptable as long as each citizen has an equal chance of electing a legislator. Multimember and floterial districts are not equivalent to single-member districts, however; in neither case does providing each citizen an equal chance of *electing* a legislator ensure that he is equally *represented* in the legislature. Where there are districts of different sizes, the representation is likely to be of different quality; the multimember or floterial representative is more likely to represent broader interests than those of his local constituency. The Court has upheld these plans without discussing the question of representation.

Weighted voting plans present the question of representation squarely. To uphold them, the Court must find that the equal representation requirement in *Reynolds* is critical. Presumably, the Court would do that; even if a legislature were composed of single-member districts of precisely equal population, it would be held unconstitutional if the legislators were given different numbers of votes.

Beyond that, the Court must find that the equal representation requirement is the only requirement in *Reynolds*. It is clear that weighted voting plans do not give voters an equal chance of electing a legislator.

22. Kilgarlin v. Hill, 386 U.S. 120 (1967).

23. There are many variations for floterial districts, of which this is only the simplest. The floterial district might have been upheld had the votes of the county's citizens for the floterial representative been weighted seven times the votes of the citizens of the large district.

24. Since the total number of representatives inside the floterial district is four—three from the larger district and one from the floterial district—the population of the large district plus the small county must be four times the population of a single-member district.

Should they be held constitutional, it must be because they ensure to each citizen equal representation in the legislature.

WMCA, Inc. v. Lomenzo[25] is the only weighted voting case to reach the Supreme Court, and its precedential value is dubious. The Court originally affirmed a district court decision which struck down a plan because it did not ensure the citizens equal representation, but it subsequently vacated the case as moot after the state adopted an acceptable districting plan.

II.

Weighted voting is the system of representation in which districts of unequal population send to a legislature representatives with corresponding inequalities in the number of their votes;[26] if the representative from a district with five thousand people has one vote, the representative from a district with ten thousand has two. The assumption is that giving the representative from the larger district twice as much voting power in the legislature precisely compensates for giving the voter in the larger district one half the influence in electing his representative, so that each voter has an equal influence upon legislative decisions.[27]

John Banzhaf III has outlined in three articles a refinement of weighted voting derived from probability theory.[28] Banzhaf shares the assumption underlying traditional weighted voting that inequalities in the population of districts can be offset precisely by inequalities in

25. 238 F. Supp. 916 (S.D.N.Y.), *aff'd per curiam*, 382 U.S. 4 (1965), *vacated as moot*, 384 U.S. 887 (1966).

26. Strictly speaking, a body composed of representatives from districts of equal population may be said to employ weighted voting, since the ratio of one legislator's vote to another's (1:1) is proportionate to the ratio of the population of their districts (p:p). In this Note, however, "weighted voting" refers to a system in which some representatives cast more votes than others.

27. In more mathematical terms:

(a) In any legislature in which each representative casts one vote, the weight of each constituent's vote, as compared to a vote in another district, can be expressed as the reciprocal of the population ratio between the two districts. If the districts are of unequal population, constituents' votes will differ in value. For example, a single vote in a district of thirty thousand will be worth one-third as much as a vote in a district of ten thousand.

(b) The inequality in vote weight can be precisely compensated by granting each representative a number of votes inversely proportional to the relative voting power of his constituents. In the example, this would give to the legislator representing thirty thousand three times as many votes as given his companion representing ten thousand. *See* Banzhaf, *Weighted Voting Doesn't Work: A Mathematical Analysis*, 19 RUT. L. REV. 317, 323 (1965).

28. Banzhaf, *One Man, ? Votes: Mathematical Analysis of Voting Power and Effective Representation*, 36 GEO. WASH. L. REV. 808 (1968); Banzhaf, *Multi-Member Electoral Districts—Do They Violate the "One Man, One Vote" Principle*, 75 YALE L.J. 1309 (1966); Banzhaf, *Weighted Voting Doesn't Work: A Mathematical Analysis*, 19 RUT. L. REV. 317 (1965). *See also* Brief for John Banzhaf III as Amicus Curiae, Iannucci v. Bd. of Supervisors, 20 N.Y.2d 244, 282 N.Y.S.2d 502, 229 N.E.2d 195 (1967).

the voting power of their representatives.[29] He distinguishes his system from the traditional one by redefining voting power as the relative frequency of a representative's ability to cast the decisive vote, rather than the simple ratio of his number of votes to the total number of votes in the legislature.[30]

More basically, Banzhaf objects to the traditional system because it has a strong bias in favor of the larger district.[31] This can best be seen in the extreme case, where a district contains over 50% of the population. A traditional weighted voting system would accord its representative over 50% of the votes, so he alone would determine the outcome of every vote. In a similar way, it favors every large district relative to smaller ones.

Given a certain allocation of votes among legislators, Banzhaf uses the following procedure to compute voting power.[32] A tabulation is made of every possible combination of yes-or-no votes by the representatives. When the votes are totaled and outcomes determined for each combination, a tabulation is made for each representative of the number of winning combinations in which he participated, where his vote equaled more than half the margin of victory. The frequency with which he cast this decisive vote determines his voting power. This figure can be brought into alignment with the proportionate size of his constituency by changing the number of votes originally allotted.[33]

29. 75 YALE L.J. 1309, *supra* note 28, at 1315.
30. 19 RUT. L. REV. 317, *supra* note 28, at 328-35.
31. With minor exceptions, such as the very small legislature, see note 33, *infra*.
32. 19 RUT. L. REV. 317, *supra* note 28, at 328-35.
33. The utility of Banzhaf's theory may be limited since it only tests allocations of votes but cannot prescribe them. Banzhaf cannot tell us how many votes to give each representative to make voting power proportionate to population. The applicability of Banzhaf's model is also circumscribed by the fact that it cannot be used for small legislatures. If there are, as an extreme example, only three representatives, their voting power must be in the ratio of 100%-0%-0%, 60%-20%-20% or 33⅓%-33⅓%-33⅓%.

This is true because in a three-man body, there exist only three possible categories of sets of winning combinations: (1) One member has over half the votes, and therefore casts the only decisive vote and has all the voting power; (2) Any combination of two members can win, so each member has equal voting power. This can be illustrated by the following chart, in which A, B and C denote representatives with one vote each:

	Possible Combinations					Ability to Affect Outcome		
Voter	A	B	C	Vote		A	B	C
	N	N	N	0-3				
	N	N	Y	1-2		X	X	
	N	Y	N	1-2		X		X
	N	Y	Y	2-1			X	X
	Y	N	N	1-2			X	X
	Y	N	Y	2-1		X		X
	Y	Y	N	2-1		X	X	
	Y	Y	Y	3-0				
					Total:	4	4	4

The New York courts, which have been the primary battleground for the issues of weighted voting, have shown considerable sympathy for Banzhaf's ideas. The leading case, *Iannucci v. Board of Supervisors of Washington County*,[34] recognized the validity of Banzhaf's mathematical analysis and elevated it to the rank of a legal test. Holding the weighted voting plans of two county boards of supervisors unconstitutional on the grounds that residents of the larger districts were overrepresented, the Court of Appeals ruled that "it should be mathematically possible for every member of the legislative body to cast a decisive vote on legislation in the same ratio which the population of his constituency bears to the total population."[35]

Two other mathematicians, Lloyd Shapley and Irwin Mann, have proposed an alternate theory[36] which appears more accurate than Banzhaf's but which has not received attention in the courts. Reasoning that legislators cast their votes successively, as in a roll call, Shapley and Mann, unlike Banzhaf, incorporate into their model the order in which votes are cast. Instead of taking every possible combination of yes and no votes, and giving credit only to those who cast a number of votes for the winning side which is more than half the winning margin, Shapley and Mann take every possible permutation of voting

Since each legislator can affect the outcome as often as can his colleagues, their voting power is equal. Now, assume that A and B each cast ten votes, but C only one. This should, one would at first assume, give A and B each ten times as much power to affect outcomes as C has. A Banzhavian table, however, will reveal that nothing has changed. The voting power of all representatives remains equal, because it still takes a combination of two members to pass legislation, and it does not matter whether the outcome is 11-10 or 20-1. (3) One member has a number of votes exactly equal to the total of his two colleagues. In this configuration, the largest member will always possess three times as much voting power as each of the others.

A(4 votes)	B(3)	C(1)	Vote		A	B	C
N	N	N	0-8				
N	N	Y	1-7		X		
N	Y	N	3-5		X		
N	Y	Y	4-4*		X		
Y	N	N	4-4*			X	X
Y	N	Y	5-3		X		X
Y	Y	N	7-1		X	X	
Y	Y	Y	8-0		X		
				Total:	6	2	2

* In a tie vote, since the measure is defeated, only those voting No can affect the outcome by switching their vote. If the three districts have equal populations, Banzhaf's system is unnecessary. If they do not, unless their populations are in the ratio of 60-20-20, the system cannot allocate voting power in exact proportion to population.

34. 20 N.Y.2d 244, 282 N.Y.S.2d 502, 229 N.E.2d 195 (1967).

35. *Id.* at 252, N.Y.S.2d at 508, 229 N.E.2d at 199.

36. Mann and Shapley, *The a priori voting strength of the electoral college*, in GAME THEORY AND RELATED APPROACHES TO SOCIAL BEHAVIOR 151 (M. Shubik ed. 1964). *Cf.* Shapley and Shubik, *A method for evaluating the distribution of power in a committee system*, *id.* at 141, 48 AM. POL. SCI. REV. 787 (1954).

sequences, assume that in each sequence the votes are cast the same way, and give credit to the pivotal voter—the last member of the winning minimum coalition.

In either Shapley and Mann's or Banzhaf's system, if the representative of a small district is allotted one vote, the representative of a larger district will always be allotted a number of votes somewhere between a lower limit of one and an upper limit of the population ratio of the larger to the smaller district. Since this population ratio determines the number of votes allotted in a traditional weighted voting system, Banzhaf and Shapley will make a smaller allotment in nearly every case.

In turn, Shapley's system seems to allot a smaller number of votes to the larger district than Banzhaf's, but while there is a consistent difference, it is very small, and the two systems are, for practical purposes, identical. Though each of the systems is distinct, Banzhaf, Shapley and Mann, and traditional weighted voting plans share the fundamental advantage of eliminating entirely the need for redistricting. The only change required when the population shifts is a readjustment of the number of votes given the representatives.

This advantage is peculiar to weighted voting. If two districts in a legislature each have 10,000 voters, and the population of one increases by 7,000, a system of single member districts requires a new district, with 1,000 voters taken away from each of the old districts. Multimember districts simplify the process somewhat by requiring only that 1,000 voters be moved from the stable to the expanded district. But with weighted voting, the number of votes given to the representative of the expanded district is simply changed from 1 to 1.7.

III.

Banzhaf and Shapley are unquestionably correct in their belief that the traditional weighted voting system contains a mathematical defect which causes it to overrepresent larger districts; in contrast, their systems seem mathematically impeccable. There is a non-mathematical defect, however, inherent in all weighted voting systems. In defining legislative power solely in terms of ability of the legislator to affect outcomes by voting, they take an extremely restrictive view of the representative's function. They take into account no representative activity other than the casting of a vote.[37]

37. The only theoretical difference between traditional and refined weighted voting is the attempt by the latter to equalize voting power more accurately. Both systems ex-

Even on the floor of the legislature, representatives perform many important functions besides voting.[38] They introduce proposals, amend those presented by others, participate in debate, and attempt to persuade their colleagues. Before a bill reaches the floor, they attend party caucuses and committee hearings to prepare and draft legislation. Outside the legislature altogether, they gather information and consult party leaders, lobbyists and constituents to ascertain their views on particular proposals.

Much of a legislator's time, however, is spent doing work unrelated to formulating or examining bills. Besides acting as an office administrator, he must provide a constant flow of services to his constituents, dispensing favors and informing and educating his voters. These non-legislative tasks, in fact, often require a much greater portion of the representative's time and energy than his legislative tasks.[39]

Even if there were not a bias, the Court should not sustain a weighted voting system. Singe-member and multi-member districts accurately provide equality of representation in non-voting functions. Weighted voting systems, on the other hand, fail to incorporate non-voting functions because they cannot be precisely quantified.[40] As a result, the Court must remain at best uncertain whether it is allowing deviations from equality of representation.

After a closer look at the nature of non-voting functions, the Court may be certain that a weighted voting system does produce deviations. While the non-voting functions cannot be precisely quantified, the effectiveness with which they are performed certainly affects the quality of representation afforded to constituents. Most of the non-voting functions involve personal services which cannot be delegated; so, the constraint on their performance is one of time. Since two men have twice as much time as one, they can participate in twice as many legislative committee hearings, debates on the floor, and reports to their constitutents.[41] They might not be twice as effective, if the single representative were from a larger district and, under a weighted voting

clude from consideration all non-voting activities. Banzhaf concedes that his model does not provide an analysis of all the factors comprising effective representation; he admits a broader approach will be necessary if the courts are to look beyond population, as it is urged here they must. 75 YALE L.J. 1309, *supra* note 28, at 1338.

38. WMCA, Inc. v. Lomenzo, 238 F. Supp. 916, 923 (S.D.N.Y. 1965).

39. Morris v. Bd. of Supervisors, 50 N.Y. Misc. 2d 929, 273 N.Y.S.2d 453 (Sup. Ct. 1966). *See, e.g.*, C. Clapp, THE CONGRESSMAN: HIS WORK AS HE SEES IT, 50 *et. seq.*, 104-27 (1963); Dexter, *The Job of the Congressman*, READINGS IN AMERICAN POLITICAL BEHAVIOR 5-26 (R.E. Wolfinger, ed. 1966) S. Bailey and H. Samuel, CONGRESS AT WORK 96 *et. seq.* (1952).

40. New York Joint Legislative Committee on Reapportionment, *Report*, Legis. Doc. No. 76 (1964) at 36.

41. WMCA, Inc. v. Lomenzo, 238 F. Supp. 916, 923 (S.D.N.Y. 1965).

plan, were given more votes. While increasing a legislator's votes may, to some extent, increase the effectiveness of his non-voting activities, this effect could not balance the bias.[42] This is apparent when the disparity in population between districts is great. The representative from a district nine times the size of another district will not be nine times as effective at non-voting functions even if, under a traditional system, he has nine times the number of votes, and certainly not under a Banzhaf or Shapley system, when he has only three times the number of votes. Assuming that the increase in effectiveness is the same with the increase of each vote, there will be an imbalance even when the disparity between districts is small. Weighted voting systems, because they allot no more representatives to larger districts than to smaller ones, have a consistent bias in favor of the smaller district.

In view of this consistent bias against larger districts, all weighted voting plans—even those of Banzhaf and Shapley, which allocate voting power precisely according to population—should be held unconstitutional. It was for precisely this reason that the district court in *WMCA, Inc. v. Lomenzo* invalidated two traditional weighted voting proposals.[43]

Nor can the proponents of traditional weighted voting, having been proven by Banzhaf and Shapley to favor larger districts consistently, claim that their bias precisely offsets the opposite bias in non-voting functions, for their voting bias is too gross. Again, the best example to demonstrate this is the limit case, in which a representative from a district containing over one-half the total population is given over half the total votes. Since that representative has all the voting power, no opposite imbalance of non-voting power could sufficiently compensate.

This illustration is part of a broader argument which can be stated in terms of mathematical functions. The assumption that non-voting activities can be performed twice as well by two men as by one means that the slope of a function representing the decrease in effectiveness of non-voting activities of a single representative per increase in population would be plotted as a straight line. On the other hand, Banzhaf and Shapley have demonstrated that the slope of the increase in the voting effectiveness of a single representative for the same increase in population would be a sharp curve. As a result, whatever the relative

42. Bannister v. Davis, 263 F. Supp. 202, 209 (E.D. La. 1966) (dicta).

43. 238 F. Supp. 916 (S.D.N.Y.), *aff'd* 382 U.S. 4 (1965), *vacated as moot*, 384 U.S. 887 (1966).

value of voting and non-voting activities, the two functions cannot balance consistently, since their slopes are different. Traditional weighted voting cannot be salvaged by a fortuitous counterbalance of voting and non-voting power.

Each weighted voting system, because it takes into account only the quantifiable aspects of representation and therefore neglects the non-voting functions, fails to provide equality of representation. Banzhaf and Shapley do equalize voting, but retain consistent inequalities in non-voting functions; traditional weighted voting allocates both activities improperly, and cannot balance the two.

To accept weighted voting plans, the Court would have to accept the second of the *Reynolds* policies, to the exclusion of the first; i.e., to require that each voter have equal representation in the legislature, rather than an equal chance to determine the outcome of an election. Weighted voting plans, however, admittedly failing the first test, also fail the second. Equal representation in the legislature means more than equal votes in the legislature, and also more than an equal chance of affecting outcomes by votes in the legislature. The Supreme Court, if it looks at all the aspects of representation, must hold any weighted voting plan unconstitutional, since it fails both of the requirements of *Reynolds*.