FORTRAN COMPUTATION OF A TABLE FOR THE SPAN DECISION-MAKING METHOD IN DYADS

by

Michael J. Lillyquist

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SIGNED: Michael J. Fallgust

APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

W. J. MacKinnon
W. J. MACKINNON
Professor of Psychology

May 1, 1968
Date

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ABSTRACT

A table which facilitates the computation of dyadic-SPAN decision is presented. The SPAN method of decision-making has a direct vote component, and, in addition, the provision that a person may grant a portion of his vote to another decision maker. An exploratory study was also undertaken in order to observe the efficacy of the SPAN decision-making method in playing a game of extended Prisoner's Dilemma. Methodological aspects of the pairing of extended Prisoner's Dilemma with dyadic SPAN are discussed.

INTRODUCTION

The influences of many variables on the outcome of the Prisoner's Dilemma (PD) game have been studied. PD is a mixed-motive game in which players can win maximally by cooperating with each other, but are also tempted by rewards for non-cooperation. In recent years, the sex of participants (Lutzker, 1961), the format of the game (Evans & Crumbaugh, 1966), the effect of friendship and disliking (Oskamp & Perlman, 1966) and collaboration among several persons (Bixenstine, Levitt & Wilson, 1966) have been investigated. The larger portion of PD research has dealt with personality, format, and interpersonal relations as variables. No studies are known in which the decision-making method has been used as the independent variable. The obvious question which arises is that if there are "good" and "poor" strategies involved in playing PD, might not a more sophisticated decision-making method act to improve the choices of the players.

The SPAN (Successive Proportionate Additive Numeration) method of group decision making, developed by MacKinnon (1966a; 1966b) was adopted for use in this context. The SPAN method has been discussed by its originator and also in separate studies by Willis (1966), Hitchcock (1967), and Mary MacKinnon (1967). Briefly, the method allows a member of a group to allocate a portion of a given number of points to an option (or options) presented to the group, and to allocate a portion of his original quota of points to

other members of the group. This allocative system of decision making allows power to be distributed more sensitively than the "one man, one vote" method. A man whose capabilities are highly respected by the group members, and to whom many points are allocated, will actually exert more power in deciding an issue. On the other hand, a member lacking confidence in his opinion on this matter is allowed to defer to a member whose opinion he respects by allocating him points.

J.S. Mill was an early thinker who distrusted strict parity of voting power. He suggested, instead, a system whereby additional votes would be granted to those in the liberal professions and higher occupations in order that their more educated opinions carry more weight than those of the masses, whose means of existence made reasoned political inquiry a seldom-indulged-in luxury. Most contemporaries would probably interpret Mill's formulation as being undemocratic, and constitutionally, they would be correct. SPAN includes Mill's innovation, but democratizes it by making any person's additional votes contingent on the approval of the electorate to which he belongs. A member does not obtain additional votes by virtue of his economic or social standing, but only as they are voluntarily given to him by the other members of the group in the form of a certain portion of their original quota of points.

The SPAN method is mathematically complex and electronic computers are an assistance, and sometimes a necessity in the

calculation of the values. A FORTRAN program was developed by Mary MacKinnon (1967) which, when combined with the choices of the group members, yields a group SPAN decision. The program is most applicable for groups of three or more members up to a limit of 52 total members and options. In the present exploratory study, however, it was decided that groups would be dyadic and that two of these dyadic groups would participate in the PD game. PD customarily involves repeated plays, and for this reason feedback after each play is essential if Ss are to rationally decide what their next play will be. Since a computer is rarely available for the prolonged individual use of an experimenter, computer calculated tables to be used in arriving at SPAN values were seen as desirable. Presented in this thesis, then, are tables allowing the immediate calculation of the SPAN weighted decision of each game player, playing on dyadic teams.

The tables were used in an exploratory study of two decision making methods, the traditional or direct method, and the SPAN method, as applied to extended PD (EPD). EPD is a modification of PD devised by Pilisuk, Potter, Rapaport, and Winter (1965). Whereas with PD, a player decides only whether to cooperate or not to cooperate, with EPD cooperation or non-cooperation can be varied from zero to twenty units. This allows a more sensitive and varied medium for decision making. Methodological considerations pertaining to the experiment will be discussed in lieu of results since the study was intended as an exploratory one. Immediately following will be a complete explanation of the tables used in

computing dyadic-SPAN values. In an appendix, the FORTRAN program used to generate the tables will be found.

TABLE 1

The first table consists of six columns and refers solely to those points which members of a team allocate to each other and to those points which the team as a whole allocated to each of its members. In the EPD game, each member (player) is alloted a quota of 100 points (for each play) which he is to divide between his own choice and his partner in a manner which reflects his confidence in his partner's and his own abilities to play the game.

Meaning of Table 1 Headings

a: the number of points that player A allocated to player B

c: the number of points that player A allocated to options

b: the number of points that player B allocated to player A

d: the number of points that player B allocated to options

AB: the sum of all points that originate solely from the points that player A allocated to player B's station and that arrived at player B's station on alternate cycles

AA: the sum of all points that originate solely from the points that player A allocated to player B's station and that arrived at player A's station on alternate cycles

BA: the sum of all points that originate solely from the points that player B allocated to player A's station and that arrived at player A's station on alternate cycles

BB: the sum of all points that originate solely from the points that player B allocated to player A's station and that arrived at player B's station on alternate cycles

GA: the sum of all points that originate solely from the points that player A allocated to player B's station or that player B allocated to player A's station and that arrived at player A's station during the cycles

GB: the sum of all points that originate solely from the points that player A allocated to player B's station or that player B allocated to player A's station and that arrived at player B's station during the cycles

Since the points that each player allocates to the options are not included in the first table, it is useful in observing the interchange of points between the two players. Table 1 does not indicate the game choices of the players.

Formulas Used in Arriving at Table 1 Values

In these formulas, $t = 100$, the total number of points with which each player begins each game. The appendix presents a derivation of one of these formulas which will serve also as an illustrative derivation of SPAN. Following these formulas, Table 1 is presented.

AB: $$\frac{t^2 a}{t^2 - ab}$$

AA: $\dfrac{abt}{t^2-ab}$

BA: $\dfrac{t^2b}{t^2-ab}$

BB: $\dfrac{abt}{t^2-ab}$

GA: AA + BA

GB: AB + BB

TABLE 1

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
0:100	0:100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0:100	5:95	0.0000	0.0000	5.0000	0.0000	5.0000	0.0000
0:100	10:90	0.0000	0.0000	10.0000	0.0000	10.0000	0.0000
0:100	15:85	0.0000	0.0000	15.0000	0.0000	15.0000	0.0000
0:100	20:80	0.0000	0.0000	20.0000	0.0000	20.0000	0.0000
0:100	25:75	0.0000	0.0000	25.0000	0.0000	25.0000	0.0000
0:100	30:70	0.0000	0.0000	30.0000	0.0000	30.0000	0.0000
0:100	35:65	0.0000	0.0000	35.0000	0.0000	35.0000	0.0000
0:100	40:60	0.0000	0.0000	40.0000	0.0000	40.0000	0.0000
0:100	45:55	0.0000	0.0000	45.0000	0.0000	45.0000	0.0000
0:100	50:50	0.0000	0.0000	50.0000	0.0000	50.0000	0.0000
0:100	55:45	0.0000	0.0000	55.0000	0.0000	55.0000	0.0000
0:100	60:40	0.0000	0.0000	60.0000	0.0000	60.0000	0.0000
0:100	65:35	0.0000	0.0000	65.0000	0.0000	65.0000	0.0000
0:100	70:30	0.0000	0.0000	70.0000	0.0000	70.0000	0.0000
0:100	75:25	0.0000	0.0000	75.0000	0.0000	75.0000	0.0000
0:100	80:20	0.0000	0.0000	80.0000	0.0000	80.0000	0.0000
0:100	85:15	0.0000	0.0000	85.0000	0.0000	85.0000	0.0000
0:100	90:10	0.0000	0.0000	90.0000	0.0000	90.0000	0.0000
0:100	95:5	0.0000	0.0000	95.0000	0.0000	95.0000	0.0000
0:100	100:0	0.0000	0.0000	100.0000	0.0000	100.0000	0.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
5:95	0:100	5.0000	0.0000	0.0000	0.0000	0.0000	5.0000
5:95	5:95	5.0125	0.2506	5.0125	0.2506	5.2632	5.2632
5:95	10:90	5.0251	0.5025	10.0503	0.5025	10.5528	5.5276
5:95	15:85	5.0378	0.7557	15.1134	0.7557	15.8690	5.7935
5:95	20:80	5.0505	1.0101	20.2020	1.0101	21.2121	6.0606
5:95	25:75	5.0633	1.2658	25.3165	1.2658	26.5823	6.3291
5:95	30:70	5.0761	1.5228	30.4569	1.5228	31.9797	6.5990
5:95	35:65	5.0891	1.7812	35.6234	1.7812	37.4046	6.8702
5:95	40:60	5.1020	2.0408	40.8163	2.0408	42.8571	7.1429
5:95	45:55	5.1151	2.3018	46.0358	2.3018	48.3376	7.4169
5:95	50:50	5.1282	2.5641	51.2821	2.5641	53.8462	7.6923
5:95	55:45	5.1414	2.8278	56.5553	2.8278	59.3830	7.9692
5:95	60:40	5.1546	3.0928	61.8557	3.0928	64.9485	8.2474
5:95	65:35	5.1680	3.3592	67.1835	3.3592	70.5426	8.5271
5:95	70:30	5.1813	3.6269	72.5389	3.6269	76.1658	8.8083
5:95	75:25	5.1948	3.8961	77.9221	3.8961	81.8182	9.0909
5:95	80:20	5.2083	4.1667	83.3333	4.1667	87.5000	9.3750
5:95	85:15	5.2219	4.4386	88.7728	4.4386	93.2115	9.6606
5:95	90:10	5.2356	4.7120	94.2408	4.7120	98.9529	9.9476
5:95	95:5	5.2493	4.9869	99.7375	4.9869	104.7244	10.2362
5:95	100:0	5.2632	5.2632	105.2632	5.2632	110.5263	10.5263

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
10:90	0:100	10.0000	0.0000	0.0000	0.0000	0.0000	10.0000
10:90	5:95	10.0503	0.5025	5.0251	0.5025	5.5276	10.5528
10:90	10:90	10.1010	1.0101	10.1010	1.0101	11.1111	11.1111
10:90	15:85	10.1523	1.5228	15.2284	1.5228	16.7513	11.6751
10:90	20:80	10.2041	2.0408	20.4082	2.0408	22.4490	12.2449
10:90	25:75	10.2564	2.5641	25.6410	2.5641	28.2051	12.8205
10:90	30:70	10.3093	3.0928	30.9278	3.0928	34.0206	13.4021
10:90	35:65	10.3627	3.6269	36.2694	3.6269	39.8964	13.9896
10:90	40:60	10.4167	4.1667	41.6667	4.1667	45.8333	14.5833
10:90	45:55	10.4712	4.7120	47.1204	4.7120	51.8325	15.1832
10:90	50:50	10.5263	5.2632	52.6316	5.2632	57.8947	15.7895
10:90	55:45	10.5820	5.8201	58.2011	5.8201	64.0212	16.4021
10:90	60:40	10.6383	6.3830	63.8298	6.3830	70.2128	17.0213
10:90	65:35	10.6952	6.9519	69.5187	6.9519	76.4706	17.6471
10:90	70:30	10.7527	7.5269	75.2688	7.5269	82.7957	18.2796
10:90	75:25	10.8108	8.1081	81.0811	8.1081	89.1892	18.9189
10:90	80:20	10.8696	8.6957	86.9565	8.6957	95.6522	19.5652
10:90	85:15	10.9290	9.2896	92.8962	9.2896	102.1858	20.2186
10:90	90:10	10.9890	9.8901	98.9011	9.8901	108.7912	20.8791
10:90	95:5	11.0497	10.4972	104.9724	10.4972	115.4696	21.5470
10:90	100:0	11.1111	11.1111	111.1111	11.1111	122.2222	22.2222

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
15:85	0:100	15.0000	0.0000	0.0000	0.0000	0.0000	15.0000
15:85	5:95	15.1134	0.7557	5.0378	0.7557	5.7935	15.8690
15:85	10:90	15.2284	1.5228	10.1523	1.5228	11.6751	16.7513
15:85	15:85	15.3453	2.3018	15.3453	2.3018	17.6471	17.6471
15:85	20:80	15.4639	3.0928	20.6186	3.0928	23.7113	18.5567
15:85	25:75	15.5844	3.8961	25.9740	3.8961	29.8701	19.4805
15:85	30:70	15.7068	4.7120	31.4136	4.7120	36.1257	20.4188
15:85	35:65	15.8311	5.5409	36.9393	5.5409	42.4802	21.3720
15:85	40:60	15.9574	6.3830	42.5532	6.3830	48.9362	22.3404
15:85	45:55	16.0858	7.2386	48.2574	7.2386	55.4960	23.3244
15:85	50:50	16.2162	8.1081	54.0541	8.1081	62.1622	24.3243
15:85	55:45	16.3488	8.9918	59.9455	8.9918	68.9373	25.3406
15:85	60:40	16.4835	9.8901	65.9341	9.8901	75.8242	26.3736
15:85	65:35	16.6205	10.8033	72.0222	10.8033	82.8255	27.4238
15:85	70:30	16.7598	11.7318	78.2123	11.7318	89.9441	28.4916
15:85	75:25	16.9014	12.6761	84.5070	12.6761	97.1831	29.5775
15:85	80:20	17.0455	13.6364	90.9091	13.6364	104.5455	30.6818
15:85	85:15	17.1920	14.6132	97.4212	14.6132	112.0344	31.8052
15:85	90:10	17.3410	15.6069	104.0462	15.6069	119.6532	32.9480
15:85	95:5	17.4927	16.6181	110.7872	16.6181	127.4052	34.1108
15:85	100:0	17.6471	17.6471	117.6471	17.6471	135.2941	35.2941

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
20:80	0:100	20.0000	0.0000	0.0000	0.0000	0.0000	20.0000
20:80	5:95	20.2020	1.0101	5.0505	1.0101	6.0606	21.2121
20:80	10:90	20.4082	2.0408	10.2041	2.0408	12.2449	22.4490
20:80	15:85	20.6186	3.0928	15.4639	3.0928	18.5567	23.7113
20:80	20:80	20.8333	4.1667	20.8333	4.1667	25.0000	25.0000
20:80	25:75	21.0526	5.2632	26.3158	5.2632	31.5789	26.3158
20:80	30:70	21.2766	6.3830	31.9149	6.3830	38.2979	27.6596
20:80	35:65	21.5054	7.5269	37.6344	7.5269	45.1613	29.0323
20:80	40:60	21.7391	8.6957	43.4783	8.6957	52.1739	30.4348
20:80	45:55	21.9780	9.8901	49.4505	9.8901	59.3407	31.8681
20:80	50:50	22.2222	11.1111	55.5556	11.1111	66.6667	33.3333
20:80	55:45	22.4719	12.3596	61.7978	12.3596	74.1573	34.8315
20:80	60:40	22.7273	13.6364	68.1818	13.6364	81.8182	36.3636
20:80	65:35	22.9885	14.9425	74.7126	14.9425	89.6552	37.9310
20:80	70:30	23.2558	16.2791	81.3953	16.2791	97.6744	39.5349
20:80	75:25	23.5294	17.6471	88.2353	17.6471	105.8824	41.1765
20:80	80:20	23.8095	19.0476	95.2381	19.0476	114.2857	42.8571
20:80	85:15	24.0964	20.4819	102.4096	20.4819	122.8916	44.5783
20:80	90:10	24.3902	21.9512	109.7561	21.9512	131.7073	46.3415
20:80	95:5	24.6914	23.4568	117.2840	23.4568	140.7407	48.1481
20:80	100:0	25.0000	25.0000	125.0000	25.0000	150.0000	50.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
25:75	0:100	25.0000	0.0000	0.0000	0.0000	0.0000	25.0000
25:75	5:95	25.3165	1.2658	5.0633	1.2658	6.3291	26.5823
25:75	10:90	25.6410	2.5641	10.2564	2.5641	12.8205	28.2051
25:75	15:85	25.9740	3.8961	15.5844	3.8961	19.4805	29.8701
25:75	20:80	26.3158	5.2632	21.0526	5.2632	26.3158	31.5789
25:75	25:75	26.6667	6.6667	26.6667	6.6667	33.3333	33.3333
25:75	30:70	27.0270	8.1081	32.4324	8.1081	40.5405	35.1351
25:75	35:65	27.3973	9.5890	38.3562	9.5890	47.9452	36.9863
25:75	40:60	27.7778	11.1111	44.4444	11.1111	55.5556	38.8889
25:75	45:55	28.1690	12.6761	50.7042	12.6761	63.3803	40.8451
25:75	50:50	28.5714	14.2857	57.1429	14.2857	71.4286	42.8571
25:75	55:45	28.9855	15.9420	63.7681	15.9420	79.7101	44.9275
25:75	60:40	29.4118	17.6471	70.5882	17.6471	88.2353	47.0588
25:75	65:35	29.8507	19.4030	77.6119	19.4030	97.0149	49.2537
25:75	70:30	30.3030	21.2121	84.8485	21.2121	106.0606	51.5152
25:75	75:25	30.7692	23.0769	92.3077	23.0769	115.3846	53.8462
25:75	80:20	31.2500	25.0000	100.0000	25.0000	125.0000	56.2500
25:75	85:15	31.7460	26.9841	107.9365	26.9841	134.9206	58.7302
25:75	90:10	32.2581	29.0323	116.1290	29.0323	145.1613	61.2903
25:75	95:5	32.7869	31.1475	124.5902	31.1475	155.7377	63.9344
25:75	100:0	33.3333	33.3333	133.3333	33.3333	166.6667	66.6667

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
30:70	0:100	30.0000	0.0000	0.0000	0.0000	0.0000	30.0000
30:70	5:95	30.4569	1.5228	5.0761	1.5228	6.5990	31.9797
30:70	10:90	30.9278	3.0928	10.3093	3.0928	13.4021	34.0206
30:70	15:85	31.4136	4.7120	15.7068	4.7120	20.4188	36.1257
30:70	20:80	31.9149	6.3830	21.2766	6.3830	27.6596	38.2979
30:70	25:75	32.4324	8.1081	27.0270	8.1081	35.1351	40.5405
30:70	30:70	32.9670	9.8901	32.9670	9.8901	42.8571	42.8571
30:70	35:75	33.5196	11.7318	39.1061	11.7318	50.8380	45.2514
30:70	40:60	34.0909	13.6364	45.4545	13.6364	59.0909	47.7273
30:70	45:55	34.6821	15.6069	52.0231	15.6069	67.6301	50.2890
30:70	50:50	35.2941	17.6471	58.8235	17.6471	76.4706	52.9412
30:70	55:45	35.9281	19.7605	65.8683	19.7605	85.6287	55.6886
30:70	60:40	36.5854	21.9512	73.1707	21.9512	95.1219	58.5366
30:70	65:35	37.2671	24.2236	80.7453	24.2236	104.9689	61.4907
30:70	70:30	37.9747	26.5823	88.6076	26.5823	115.1899	64.5570
30:70	75:25	38.7097	29.0323	96.7742	29.0323	125.8064	67.7419
30:70	80:20	39.4737	31.5789	105.2632	31.5789	136.8421	71.0526
30:70	85:15	40.2685	34.2282	114.0940	34.2282	148.3221	74.4966
30:70	90:10	41.0959	36.9863	123.2877	36.9863	160.2740	78.0822
30:70	95:5	41.9580	39.8601	132.8671	39.8601	172.7273	81.8182
30:70	100:0	42.8571	42.8571	142.8571	42.8571	185.7143	85.7143

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
35:65	0:100	35.0000	0.0000	0.0000	0.0000	0.0000	35.0000
35:65	5:95	35.6234	1.7812	5.0891	1.7812	6.8702	37.4046
35:65	10:90	36.2694	3.6269	10.3627	3.6269	13.9896	39.8964
35:65	15:85	36.9393	5.5409	15.8311	5.5409	21.3720	42.4802
35:65	20:80	37.6344	7.5269	21.5054	7.5269	29.0323	45.1613
35:65	25:75	38.3562	9.5890	27.3973	9.5890	36.9863	47.9452
35:65	30:70	39.1061	11.7318	33.5196	11.7318	45.2514	50.8380
35:65	35:65	39.8860	13.9601	39.8860	13.9601	53.8462	53.8462
35:65	40:60	40.6977	16.2791	46.5116	16.2791	62.7907	56.9767
35:65	45:55	41.5430	18.6944	53.4125	18.6944	72.1068	60.2374
35:65	50:50	42.4242	21.2121	60.6061	21.2121	81.8182	63.6364
35:65	55:45	43.3437	23.8390	68.1115	23.8390	91.9505	67.1827
35:65	60:40	44.3038	26.5823	75.9494	26.5823	102.5316	70.8861
35:65	65:35	45.3074	29.4498	84.1424	29.4498	113.5922	74.7573
35:65	70:30	46.3576	32.4503	92.7152	32.4503	125.1656	78.8080
35:65	75:25	47.4576	35.5932	101.6949	35.5932	137.2881	83.0509
35:65	80:20	48.6111	38.8889	111.1111	38.8889	150.0000	87.5000
35:65	85:15	49.8221	42.3488	120.9964	42.3488	163.3452	92.1708
35:65	90:10	51.0949	45.9854	131.3869	45.9854	177.3723	97.0803
35:65	95:5	52.4345	49.8127	142.3221	49.8127	192.1348	102.2472
35:65	100:0	53.8462	53.8462	153.8462	53.8462	207.6923	107.6923

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
40:60	0:100	40.0000	0.0000	0.0000	0.0000	0.0000	40.0000
40:60	5:95	40.8163	2.0408	5.1020	2.0408	7.1429	42.8571
40:60	10:90	41.6667	4.1667	10.4167	4.1667	14.5833	45.8333
40:60	15:85	42.5532	6.3830	15.9575	6.3830	22.3404	48.9362
40:60	20:80	43.4783	8.6957	21.7391	8.6957	30.4348	52.1739
40:60	25:75	44.4444	11.1111	27.7778	11.1111	38.8889	55.5556
40:60	30:70	45.4546	13.6364	34.0909	13.6364	47.7273	59.0909
40:60	35:65	46.5116	16.2791	40.6977	16.2791	56.9767	62.7907
40:60	40:60	47.6191	19.0476	47.6191	19.0476	66.6667	66.6667
40:60	45:55	48.7805	21.9512	54.8781	21.9512	76.8293	70.7317
40:60	50:50	50.0000	25.0000	62.5000	25.0000	87.5000	75.0000
40:60	55:45	51.2821	28.2051	70.5128	28.2051	98.7180	79.4872
40:60	60:40	52.6316	31.5790	78.9474	31.5790	110.5263	84.2105
40:60	65:35	54.0541	35.1351	87.8378	35.1351	122.9730	89.1892
40:60	70:30	55.5556	38.8889	97.2222	38.8889	136.1111	94.4444
40:60	75:25	57.1429	42.8571	107.1429	42.8571	150.0000	100.0000
40:60	80:20	58.8235	47.0588	117.6471	47.0588	164.7059	105.8823
40:60	85:15	60.6061	51.5152	128.7879	51.5152	180.3030	112.1212
40:60	90:10	62.5000	56.2500	140.6250	56.2500	196.8750	118.7500
40:60	95:5	64.5161	61.2903	153.2258	61.2903	214.5161	125.8064
40:60	100:0	66.6667	66.6667	166.6667	66.6667	233.3333	133.3333

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
45:55	0:100	45.0000	0.0000	0.0000	0.0000	0.0000	45.0000
45:55	5:95	46.0358	2.3018	5.1151	2.3018	7.4169	48.3376
45:55	10:90	47.1204	4.7120	10.4712	4.7120	15.1833	51.8325
45:55	15:85	48.2574	7.2386	16.0858	7.2386	23.3244	55.4960
45:55	20:80	49.4506	9.8901	21.9780	9.8901	31.8681	59.3407
45:55	25:75	50.7042	12.6761	28.1690	12.6761	40.8451	63.3803
45:55	30:70	52.0231	15.6069	34.6821	15.6069	50.2890	67.6301
45:55	35:65	53.4125	18.6944	41.5430	18.6944	60.2374	72.1068
45:55	40:60	54.8781	21.9512	48.7805	21.9512	70.7317	76.8293
45:55	45:55	56.4263	25.3919	56.4263	25.3919	81.8182	81.8182
45:55	50:50	58.0645	29.0323	64.5161	29.0323	93.5484	87.0968
45:55	55:45	59.8007	32.8904	73.0897	32.8904	105.9801	92.6910
45:55	60:40	61.6438	36.9863	82.1918	36.9863	119.1781	98.6301
45:55	65:35	63.6042	41.3428	91.8728	41.3428	133.2155	104.9470
45:55	70:30	65.6934	45.9854	102.1898	45.9854	148.1752	111.6788
45:55	75:25	67.9245	50.9434	113.2075	50.9434	164.1509	118.8679
45:55	80:20	70.3125	56.2500	125.0000	56.2500	181.2500	126.5625
45:55	85:15	72.8745	61.9433	137.6518	61.9433	199.5951	134.8178
45:55	90:10	75.6303	68.0672	151.2605	68.0672	219.3277	143.6975
45:55	95:5	78.6026	74.6725	165.9389	74.6725	240.6113	153.2751
45:55	100:0	81.8182	81.8182	181.8182	81.8182	263.6364	163.6364

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
50:50	0:100	50.0000	0.0000	0.0000	0.0000	0.0000	50.0000
50:50	5:95	51.2821	2.5641	5.1282	2.5641	7.6923	53.8462
50:50	10:90	52.6316	5.2632	10.5263	5.2632	15.7895	57.8947
50:50	15:85	54.0541	8.1081	16.2162	8.1081	24.3243	62.1622
50:50	20:80	55.5556	11.1111	22.2222	11.1111	33.3333	66.6667
50:50	25:75	57.1429	14.2857	28.5714	14.2857	42.8571	71.4286
50:50	30:70	58.8235	17.6471	35.2941	17.6471	52.9412	76.4706
50:50	35:65	60.6061	21.2121	42.4242	21.2121	63.6334	81.8182
50:50	40:60	62.5000	25.0000	50.0000	25.0000	75.0000	87.5000
50:50	45:55	64.5161	29.0323	58.0645	29.0323	87.0968	93.5484
50:50	50:50	66.6667	33.3333	66.6667	33.3333	100.0000	100.0000
50:50	55:45	68.9655	37.9310	75.8621	37.9310	113.7931	106.8966
50:50	60:40	71.4286	42.8571	85.7143	42.8571	128.5714	114.2857
50:50	65:35	74.0741	48.1482	96.2963	48.1482	144.4444	122.2222
50:50	70:30	76.9231	53.8462	107.6923	53.8462	161.5385	130.7692
50:50	75:25	80.0000	60.0000	120.0000	60.0000	180.0000	140.0000
50:50	80:20	83.3333	66.6667	133.3333	66.6667	200.0000	150.0000
50:50	85:15	86.9565	73.9130	147.8261	73.9130	221.7391	160.8696
50:50	90:10	90.9091	81.8182	163.6364	81.8182	245.4546	172.7273
50:50	95:5	95.2381	90.4762	180.9524	90.4762	271.4286	185.7143
50:50	100:0	100.0000	100.0000	200.0000	100.0000	300.0000	200.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
55:45	0:100	55.0000	0.0000	0.0000	0.0000	0.0000	55.0000
55:45	5:95	56.5553	2.8278	5.1414	2.8278	7.9692	59.3830
55:45	10:90	58.2011	5.8201	10.5820	5.8201	16.4021	64.0212
55:45	15:85	59.9455	8.9918	16.3488	8.9918	25.3406	68.9373
55:45	20:80	61.7978	12.3596	22.4719	12.3596	34.8315	74.1573
55:45	25:75	63.7681	15.9420	28.9855	13.9420	44.9275	79.7101
55:45	30:70	65.8683	19.7605	35.9281	19.7605	55.6886	85.6287
55:45	35:65	68.1115	23.8390	43.3437	23.8390	67.1827	91.9505
55:45	40:60	70.5128	28.2051	51.2821	28.2051	79.4872	98.7180
55:45	45:55	73.0897	32.8904	59.8007	32.8904	92.7910	105.9801
55:45	50:50	75.0621	37.9310	68.9655	37.9310	106.8966	113.7931
55:45	55:45	78.8531	43.3692	78.8531	43.3692	122.2222	122.2222
55:45	60:40	82.0896	49.2537	89.5522	49.2537	138.8060	131.3433
55:45	65:35	85.6031	55.6420	101.1673	55.6420	156.8093	141.2451
55:45	70:30	89.4301	62.6016	113.8211	62.6016	176.4228	152.0325
55:45	75:25	93.6170	70.2128	127.6596	70.2128	197.8723	163.8298
55:45	80:20	98.2143	78.5714	142.8571	78.5714	221.4286	176.7857
55:45	85:15	103.2864	87.7934	159.6244	87.7934	247.4178	191.0798
55:45	90:10	108.9109	98.0198	178.2178	98.0198	276.2376	206.9307
55:45	95:5	115.1832	109.4241	198.9529	109.4241	308.3769	224.6073
55:45	100:0	122.2222	122.2222	222.2222	122.2222	344.4444	244.4444

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
60:40	0:100	60.0000	0.0000	0.0000	0.0000	0.0000	60.0000
60:40	5:95	61.8557	3.0928	5.1546	3.0928	8.2474	64.9485
60:40	10:90	63.8298	6.3830	10.6383	6.3830	17.0213	70.2128
60:40	15:85	65.9341	9.8901	16.4835	9.8901	26.3736	75.8242
60:40	20:80	68.1818	13.6364	22.7273	13.6364	36.3636	81.8182
60:40	25:75	70.5882	17.6471	29.4118	17.6471	47.0588	88.2353
60:40	30:70	73.1707	21.9512	36.5854	21.9512	58.5366	95.1220
60:40	35:65	75.9494	26.5823	44.3038	26.5823	70.8861	102.5316
60:40	40:60	78.9474	31.5790	52.6316	31.5790	84.2105	110.5263
60:40	45:55	82.1918	36.9863	61.6438	36.9863	98.6301	119.1781
60:40	50:50	85.7143	42.8571	71.4286	42.8571	114.2851	128.5714
60:40	55:45	89.5522	49.2537	82.0896	49.2537	131.3433	138.8060
60:40	60:40	93.7500	56.2500	93.7500	56.2500	150.0000	150.0000
60:40	65:35	98.3607	63.9344	106.5574	63.9344	170.4918	162.2951
60:40	70:30	103.4483	72.4138	120.6897	72.4138	193.1034	175.8621
60:40	75:25	109.0909	81.8182	136.3636	81.8182	218.1818	190.9091
60:40	80:20	115.3846	92.3077	153.8462	92.3077	246.1538	207.6923
60:40	85:15	122.4490	104.0816	173.4694	104.0816	277.5510	226.5306
60:40	90:10	130.4348	117.3913	195.6522	117.3913	313.0435	247.8261
60:40	95:5	139.5349	132.5581	220.9302	132.5581	353.4884	272.0930
60:40	100:0	150.0000	150.0000	250.0000	150.0000	400.0000	300.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
65:35	0:100	65.0000	0.0000	0.0000	0.0000	0.0000	65.0000
65:35	5:95	67.1835	3.3592	5.1680	3.3592	8.5271	70.5426
65:35	10:90	69.5187	6.9519	10.6952	6.9519	17.6471	76.4706
65:35	15:85	72.0222	10.8033	16.6205	10.8033	27.4238	82.8255
65:35	20:80	74.7126	14.9425	22.9885	14.9425	37.9310	89.6552
65:35	25:75	77.6119	19.4030	29.8508	19.4030	49.2537	97.0149
65:35	30:70	80.7453	24.2236	37.2671	24.2236	61.4907	104.9689
65:35	35:65	84.1424	29.4498	45.3074	29.4498	74.7573	113.5922
65:35	40:60	87.8378	35.1351	54.0541	35.1351	89.1892	122.9730
65:35	45:55	91.8728	41.3428	63.6042	41.3428	104.9470	133.2155
65:35	50:50	96.2963	48.1482	74.0741	48.1482	122.2222	144.4444
65:35	55:45	101.1673	55.6420	85.6031	55.6420	141.2451	156.8093
65:35	60:40	106.5574	63.9344	98.3607	63.9344	162.2951	170.4918
65:35	65:35	112.5541	73.1602	112.5541	73.1602	185.7143	185.7143
65:35	70:30	119.2661	83.4862	128.4404	83.4862	211.9266	202.7523
65:35	75:25	126.8293	95.1220	146.3415	95.1220	241.4634	221.9512
65:35	80:20	135.4167	108.3333	166.6667	108.3333	275.0000	243.7500
65:35	85:15	145.2514	123.4637	189.9441	123.4637	313.4078	268.7151
65:35	90:10	156.6265	140.9638	216.8675	140.9638	357.8313	297.5903
65:35	95:5	169.9346	161.4379	248.3660	161.4379	409.8039	331.3725
65:35	100:0	185.7143	185.7143	285.7143	185.7143	471.4286	371.4286

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
70:30	0:100	70.0000	0.0000	0.0000	0.0000	0.0000	70.0000
70:30	5:95	72.5389	3.6269	5.1814	3.6269	8.8083	76.1658
70:30	10:90	75.2688	7.5269	10.7527	7.5269	18.2796	82.7957
70:30	15:85	78.2123	11.7318	16.7598	11.7318	28.4916	89.9441
70:30	20:80	81.3954	16.2791	23.2558	16.2791	39.5349	97.6744
70:30	25:75	84.8485	21.2121	30.3030	21.2121	51.5152	106.0606
70:30	30:70	88.6076	26.5823	37.9747	26.5823	64.5570	115.1899
70:30	35:65	92.7152	32.4503	46.3576	32.4503	78.8080	125.1656
70:30	40:60	97.2222	38.8889	55.5556	38.8889	94.4444	136.1111
70:30	45:55	102.1898	45.9854	65.6934	45.9854	111.6788	148.1752
70:30	50:50	107.6923	53.8462	76.9231	53.8462	130.7692	161.5385
70:30	55:45	113.8211	62.6016	89.4309	62.6016	152.0325	176.4228
70:30	60:40	120.6897	72.4138	103.4483	72.4138	175.8621	193.1034
70:30	65:35	128.4404	83.4862	119.2661	83.4862	202.7523	211.9266
70:30	70:30	137.2549	96.0784	137.2549	96.0784	233.3333	233.3333
70:30	75:25	147.3684	110.5263	157.8947	110.5263	268.4210	257.8947
70:30	80:20	159.0909	127.2727	181.8182	127.2727	309.0909	286.3636
70:30	85:15	172.8395	146.9136	209.8765	146.9136	356.7901	319.7531
70:30	90:10	189.1892	170.2703	243.2432	170.2703	413.5135	359.4594
70:30	95:5	208.9552	198.5075	283.5821	198.5075	482.0895	407.4627
70:30	100:0	233.3333	233.3333	333.3333	233.3333	566.6667	466.6667

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
75:25	0:100	75.0000	0.0000	0.0000	0.0000	0.0000	75.0000
75:25	5:95	77.9221	3.8961	5.1948	3.8961	9.0909	81.8182
75:25	10:90	81.0811	8.1081	10.8108	8.1081	18.9189	89.1892
75:25	15:85	84.5070	12.6761	16.9014	12.6761	29.5775	97.1831
75:25	20:80	88.2353	17.6471	23.5294	17.6471	41.1765	105.8824
75:25	25:75	92.3077	23.0769	30.7692	23.0769	53.8462	115.3846
75:25	30:70	96.7742	29.0323	38.7097	29.0323	67.7419	125.8064
75:25	35:65	101.6949	35.5932	47.4576	35.5932	83.0509	137.2881
75:25	40:60	107.1429	42.8571	57.1429	42.8571	100.0000	150.0000
75:25	45:55	113.2075	50.9434	67.9245	50.9434	118.8679	164.1509
75:25	50:50	120.0000	60.0000	80.0000	60.0000	140.0000	180.0000
75:25	55:45	127.6596	70.2128	93.6170	70.2128	163.8298	197.8723
75:25	60:40	136.3636	81.8182	109.0909	81.8182	190.9091	218.1818
75:25	65:35	146.3415	95.1220	126.8293	95.1220	221.9512	241.4634
75:25	70:30	157.8947	110.5263	147.3684	110.5263	257.8947	268.4210
75:25	75:25	171.4286	128.5714	171.4286	128.5714	300.0000	300.0000
75:25	80:20	187.5000	150.0000	200.0000	150.0000	350.0000	337.5000
75:25	85:15	206.8966	175.8621	234.4828	175.8621	410.3448	382.7586
75:25	90:10	230.7692	207.6923	276.9231	207.6923	484.6154	438.4615
75:25	95:5	260.8696	247.8261	330.4348	247.8261	578.2609	508.6956
75:25	100:0	300.0000	300.0000	400.0000	300.0000	700.0000	600.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
80:20	0:100	80.0000	0.0000	0.0000	0.0000	0.0000	80.0000
80:20	5:95	83.3333	4.1667	5.2083	4.1667	9.3750	87.5000
80:20	10:90	86.9565	8.6957	10.8696	8.6957	19.5652	95.6522
80:20	15:85	90.9091	13.6364	17.0455	13.6364	30.6818	104.5455
80:20	20:80	95.2381	19.0476	23.8095	19.0476	42.8571	114.2857
80:20	25:75	100.0000	25.0000	31.2500	25.0000	56.2500	125.0000
80:20	30:70	105.2632	31.5790	39.4737	31.5790	71.0526	136.8421
80:20	35:65	111.1111	38.8889	48.6111	38.8889	87.5000	150.0000
80:20	40:60	117.6471	47.0588	58.8235	47.0588	105.8824	164.7059
80:20	45:55	125.0000	56.2500	70.3125	56.2500	126.5625	181.2500
80:20	50:50	133.3333	66.6667	83.3333	66.6667	150.0000	200.0000
80:20	55:45	142.8571	78.5714	98.2143	78.5714	176.7857	221.4286
80:20	60:40	153.8462	92.3077	115.3846	92.3077	207.6923	246.1538
80:20	65:35	166.6667	108.3333	135.4167	108.3333	243.7500	275.0000
80:20	70:30	181.8182	127.2727	159.0909	127.2727	286.3636	309.0909
80:20	75:25	200.0000	150.0000	187.5000	150.0000	337.5000	350.0000
80:20	80:20	222.2222	177.7778	222.2222	177.7778	400.0000	400.0000
80:20	85:15	250.0000	212.5000	265.6250	212.5000	478.1250	462.5000
80:20	90:10	285.7143	257.1428	321.4286	257.1428	578.5714	542.8571
80:20	95:5	333.3333	316.6667	395.8333	316.6667	712.5000	650.0000
80:20	100:0	400.0000	400.0000	500.0000	400.0000	900.0000	800.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
85:15	0:100	85.0000	0.0000	0.0000	0.0000	0.0000	85.0000
85:15	5:95	88.7729	4.4386	5.2219	4.4386	9.6606	93.2115
85:15	10:90	92.8962	9.2896	10.9290	9.2896	20.2186	102.1858
85:15	15:85	97.4212	14.6132	17.1920	14.6132	31.8052	112.0344
85:15	20:80	102.4096	20.4819	24.0964	20.4819	44.5783	122.8916
85:15	25:75	107.9365	26.9841	31.7460	26.9841	58.7302	134.9206
85:15	30:70	114.0940	34.2282	40.2685	34.2282	74.4966	148.3221
85:15	35:65	120.9964	42.3488	49.8221	42.3488	92.1708	163.3452
85:15	40:60	128.7879	51.5152	60.6061	51.5152	112.1212	180.3030
85:15	45:55	137.6518	61.9433	72.8745	61.9433	134.8178	199.5951
85:15	50:50	147.8261	73.9130	86.9565	73.9130	160.8696	221.7391
85:15	55:45	159.6244	87.7934	103.2864	87.7934	191.0798	247.4178
85:15	60:40	173.4694	104.0816	122.4490	104.0816	226.5306	277.5510
85:15	65:35	189.9441	123.4637	145.2514	123.4637	268.7151	313.4078
85:15	70:30	209.8765	146.9136	172.8395	146.9136	319.7531	356.7901
85:15	75:25	234.4828	175.8621	206.8966	175.8621	382.7586	410.3448
85:15	80:20	265.6250	212.5000	250.0000	212.5000	462.5000	478.1250
85:15	85:15	306.3063	260.3604	306.3063	260.3604	566.6667	566.6667
85:15	90:10	361.7021	325.5319	382.9787	325.5319	708.5106	687.2340
85:15	95:5	441.5584	419.4805	493.5065	419.4805	912.9870	861.0389
85:15	100:0	566.6667	566.6667	666.6667	566.6667	1233.3333	1133.3333

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
90:10	0:100	90.0000	0.0000	0.0000	0.0000	0.0000	90.0000
90:10	5:95	94.2408	4.7120	5.2356	4.7120	9.9476	98.9529
90:10	10:90	98.9011	9.8901	10.9890	9.8901	20.8791	108.7912
90:10	15:85	104.0462	15.6069	17.3410	15.6069	32.9480	119.6532
90:10	20:80	109.7561	21.9512	24.3902	21.9512	46.3415	131.7073
90:10	25:75	116.1290	29.0323	32.2581	29.0323	61.2903	145.1613
90:10	30:70	123.2877	36.9863	41.0959	36.9863	78.0822	160.2740
90:10	35:65	131.3869	45.9854	51.0949	45.9854	97.0803	177.3723
90:10	40:60	140.6250	56.2500	62.5000	56.2500	118.7500	196.8750
90:10	45:55	151.2605	68.0672	75.6303	68.0672	143.6975	219.3277
90:10	50:50	163.6364	81.8182	90.9091	81.8182	172.7273	245.4546
90:10	55:45	178.2178	98.0198	108.9109	98.0198	206.9307	276.2376
90:10	60:40	195.6522	117.3913	130.4348	117.3913	247.8261	313.0435
90:10	65:35	216.8675	140.9639	156.6265	140.9639	297.5904	357.8313
90:10	70:30	243.2432	170.2703	189.1892	170.2703	359.4594	413.5135
90:10	75:25	276.9231	207.6923	230.7692	207.6923	438.4615	484.6154
90:10	80:20	321.4286	257.1429	285.7143	257.1429	542.8571	578.5714
90:10	85:15	382.9787	325.5319	361.7021	325.5319	687.2340	708.5106
90:10	90:10	473.6842	426.3158	473.6842	426.3158	900.0000	900.0000
90:10	95:5	620.6897	589.6552	655.1724	589.6552	1244.8275	1210.3448
90:10	100:0	900.0000	900.0000	1000.0000	900.0000	1900.0000	1800.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
95:5	0:100	95.0000	0.0000	0.0000	0.0000	0.0000	95.0000
95:5	5:95	99.7375	4.9869	5.2493	4.9869	10.2362	104.7244
95:5	10:90	104.9724	10.4972	11.0497	10.4972	21.5470	115.4696
95:5	15:85	110.7872	16.6181	17.4927	16.6181	34.1108	127.4052
95:5	20:80	117.2840	23.4568	24.6914	23.4568	48.1482	140.7407
95:5	25:75	124.5902	31.1475	32.7869	31.1475	63.9344	155.7377
95:5	30:70	132.8671	39.8601	41.9580	39.8601	81.8182	172.7273
95:5	35:65	142.3221	49.8127	52.4345	49.8127	102.2472	192.1348
95:5	40:60	153.2258	61.2903	64.5161	61.2903	125.8065	214.5161
95:5	45:55	165.9389	74.6725	78.6026	74.6725	153.2751	240.6113
95:5	50:50	180.9524	90.4762	95.2381	90.4762	185.7143	271.4286
95:5	55:45	198.9529	109.4241	115.1832	109.4241	224.6073	308.3769
95:5	60:40	220.9302	132.5581	139.5349	132.5581	272.0930	353.4884
95:5	65:35	248.3660	161.4379	169.9346	161.4379	331.3725	409.8039
95:5	70:30	283.5821	198.5075	208.9552	198.5075	407.4627	482.0895
95:5	75:25	330.4348	247.8261	260.8696	247.8261	508.6956	578.2609
95:5	80:20	395.8333	316.6667	333.3333	316.6667	649.9999	712.5000
95:5	85:15	493.5065	419.4805	441.5584	419.4805	861.0389	912.9870
95:5	90:10	655.1724	589.6552	620.6897	589.6552	1210.3448	1244.8275
95:5	95:5	974.3590	925.6410	974.3590	925.6410	1900.0000	1900.0000
95:5	100:0	1900.0000	1900.0000	2000.0000	1900.0000	3900.0000	3800.0000

TABLE 1 CONTINUED

POINTS ORIGINATING FROM MEMBER(S)

AND ARRIVING AT MEMBER'S STATION

DURING ALL CYCLES

a:c	b:d	AB	AA	BA	BB	GA	GB
100:0	0:100	100.0000	0.0000	0.0000	0.0000	0.0000	100.0000
100:0	5:95	105.2632	5.2632	5.2632	5.2632	10.5263	110.5263
100:0	10:90	111.1111	11.1111	11.1111	11.1111	22.2222	122.2222
100:0	15:85	117.6471	17.6471	17.6471	17.6471	35.2941	135.2941
100:0	20:80	125.0000	25.0000	25.0000	25.0000	50.0000	150.0000
100:0	25:75	133.3333	33.3333	33.3333	33.3333	66.6667	166.6667
100:0	30:70	142.8571	42.8571	42.8571	42.8571	85.7143	185.7143
100:0	35:65	153.8462	53.8462	53.8462	53.8462	107.6923	207.6923
100:0	40:60	166.6667	66.6667	66.6667	66.6667	133.3333	233.3333
100:0	45:55	181.8182	81.8182	81.8182	81.8182	163.6364	263.6364
100:0	50:50	200.0000	100.0000	100.0000	100.0000	200.0000	300.0000
100:0	55:45	222.2222	122.2222	122.2222	122.2222	244.4444	344.4444
100:0	60:40	250.0000	150.0000	150.0000	150.0000	300.0000	400.0000
100:0	65:35	285.7143	185.7143	185.7143	185.7143	371.4286	471.4286
100:0	70:30	333.3333	233.3333	233.3333	233.3333	466.6667	566.6667
100:0	75:25	400.0000	300.0000	300.0000	300.0000	600.0000	700.0000
100:0	80:20	500.0000	400.0000	400.0000	400.0000	800.0000	900.0000
100:0	85:15	666.6667	566.6667	566.6667	566.6667	1133.3333	1233.3333
100:0	90:10	1000.0000	900.0000	900.0000	900.0000	1800.0000	1900.0000
100:0	95:5	2000.0000	1900.0000	1900.0000	1900.0000	3800.0000	3900.0000
100:0	100:0	∞	∞	∞	∞	∞	∞

TABLE 2

The second table also consists of six columns and refers to those points which members of a team allocate to each other and that also flow from either member to the options. Also included in Table 2, but not an original part of the FORTRAN program, are columns 11 and 12 which include the direct points from the originating member to the options.

Meaning of Table 2 Headings

a: the number of points that player A allocated to player B

c: the number of points that player A allocated to options

b: the number of points that player B allocated to player A

d: the number of points that player B allocated to options

ABO: the sum of all points that originate solely from the points that player A allocated to player B's station and that flow from player B's station to the option on alternate cycles.

AAO: the sum of all points that originate solely from the points that player A allocated to player B's station and that flow from player A's station to the options on alternate cycles

BAO: the sum of all points that originate solely from the points that player B allocated to player A's station and that flow from player A's station to the options on alternate cycles

BBO: the sum of all points that originate solely from the points that player B allocated to player A's station and that flow from player B's station to the options on alternate cycles

c + AAO: the direct points that player A allocated to the options, plus AAO

d + BBO: the direct points that player B allocated to the options, plus BBO

Formulas Used in Arriving at Table 2 Values

ABO: $\frac{d}{100} + AB$

AAO: $\frac{c}{100} + AA$

BAO: $\frac{c}{100} + BA$

BBO: $\frac{d}{100} + BB$

c + AAO: c + AAO

d + BBO: d + BBO

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
0:100	0:100	0.0000	0.0000	0.0000	0.0000	100.0000	100.0000
0:100	5:95	0.0000	0.0000	5.0000	0.0000	100.0000	95.0000
0:100	10:90	0.0000	0.0000	10.0000	0.0000	100.0000	90.0000
0:100	15:85	0.0000	0.0000	15.0000	0.0000	100.0000	85.0000
0:100	20:80	0.0000	0.0000	20.0000	0.0000	100.0000	80.0000
0:100	25:75	0.0000	0.0000	25.0000	0.0000	100.0000	75.0000
0:100	30:70	0.0000	0.0000	30.0000	0.0000	100.0000	70.0000
0:100	35:65	0.0000	0.0000	35.0000	0.0000	100.0000	65.0000
0:100	40:60	0.0000	0.0000	40.0000	0.0000	100.0000	60.0000
0:100	45:55	0.0000	0.0000	45.0000	0.0000	100.0000	55.0000
0:100	50:50	0.0000	0.0000	50.0000	0.0000	100.0000	50.0000
0:100	55:45	0.0000	0.0000	55.0000	0.0000	100.0000	45.0000
0:100	60:40	0.0000	0.0000	60.0000	0.0000	100.0000	40.0000
0:100	65:35	0.0000	0.0000	65.0000	0.0000	100.0000	35.0000
0:100	70:30	0.0000	0.0000	70.0000	0.0000	100.0000	30.0000
0:100	75:25	0.0000	0.0000	75.0000	0.0000	100.0000	25.0000
0:100	80:20	0.0000	0.0000	80.0000	0.0000	100.0000	20.0000
0:100	85:15	0.0000	0.0000	85.0000	0.0000	100.0000	15.0000
0:100	90:10	0.0000	0.0000	90.0000	0.0000	100.0000	10.0000
0:100	95:5	0.0000	0.0000	95.0000	0.0000	100.0000	5.0000
0:100	100:0	0.0000	0.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
5:95	0:100	5.0000	0.0000	0.0000	0.0000	95.0000	100.0000
5:95	5:95	4.7619	0.2381	4.7619	0.2381	95.2381	95.2381
5:95	10:90	4.5226	0.4774	9.5477	0.4523	95.4774	90.4523
5:95	15:85	4.2821	0.7179	14.3577	0.6423	95.7179	85.6423
5:95	20:80	4.0404	0.9596	19.1919	0.8081	95.9596	80.8081
5:95	25:75	3.7975	1.2025	24.0506	0.9494	96.2025	75.9494
5:95	30:70	3.5533	1.4467	28.9340	1.0660	96.4467	71.0660
5:95	35:65	3.3079	1.6921	33.8422	1.1578	96.6921	66.1578
5:95	40:60	3.0612	1.9388	38.7755	1.2245	96.9388	61.2245
5:95	45:55	2.8133	2.1867	43.7340	1.2660	97.1867	56.2660
5:95	50:50	2.5641	2.4359	48.7180	1.2821	97.4359	51.2821
5:95	55:45	2.3136	2.6864	53.7275	1.2725	97.6864	46.2725
5:95	60:40	2.0619	2.9381	58.7629	1.2371	97.9381	41.2371
5:95	65:35	1.8088	3.1912	63.8243	1.1757	98.1912	36.1757
5:95	70:30	1.5544	3.4456	68.9119	1.0881	98.4456	31.0881
5:95	75:25	1.2987	3.7013	74.0260	0.9740	98.7013	25.9740
5:95	80:20	1.0417	3.9583	79.1667	0.8333	98.9583	20.8333
5:95	85:15	0.7833	4.2167	84.3342	0.6658	99.2167	15.6658
5:95	90:10	0.5236	4.4764	89.5288	0.4712	99.4764	10.4712
5:95	95:5	0.2625	4.7375	94.7507	0.2493	99.7375	5.2493
5:95	100:0	0.0000	5.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
10:90	0:100	10.0000	0.0000	0.0000	0.0000	90.0000	100.0000
10:90	5:95	9.5477	0.4523	4.5226	0.4774	90.4523	95.4774
10:90	10:90	9.0909	0.9091	9.0909	0.9091	90.9091	90.9091
10:90	15:85	8.6294	1.3706	13.7056	1.2944	91.3706	86.2944
10:90	20:80	8.1633	1.8367	18.3673	1.6327	91.8367	81.6327
10:90	25:75	7.6923	2.3077	23.0769	1.9231	92.3077	76.9231
10:90	30:70	7.2165	2.7835	27.8351	2.1650	92.7835	72.1650
10:90	35:65	6.7358	3.2643	32.6425	2.3575	93.2643	67.3575
10:90	40:60	6.2500	3.7500	37.5000	2.5000	93.7500	62.5000
10:90	45:55	5.7592	4.2408	42.4084	2.5916	94.2408	57.5916
10:90	50:50	5.2632	4.7368	47.3684	2.6316	94.7368	52.6316
10:90	55:45	4.7619	5.2381	52.3810	2.6191	95.2381	47.6191
10:90	60:40	4.2553	5.7447	57.4468	2.5532	95.7447	42.5532
10:90	65:35	3.7433	6.2567	62.5668	2.4332	96.2567	37.4332
10:90	70:30	3.2258	6.7742	67.7419	2.2581	96.7742	32.2581
10:90	75:25	2.7027	7.2973	72.9730	2.0270	97.2973	27.0270
10:90	80:20	2.1739	7.8261	78.2609	1.7391	97.8261	21.7391
10:90	85:15	1.6393	8.3607	83.6066	1.3934	98.3607	16.3934
10:90	90:10	1.0989	8.9011	89.0110	0.9890	98.9011	10.9891
10:90	95:5	0.5525	9.4475	94.4751	0.5249	99.4475	5.5249
10:90	100:0	0.0000	10.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
15:85	0:100	15.0000	0.0000	0.0000	0.0000	85.0000	100.0000
15:85	5:95	14.3577	0.6423	4.2821	0.7179	85.6423	95.7179
15:85	10:90	13.7056	1.2944	8.6294	1.3706	86.2944	91.3706
15:85	15:85	13.0435	1.9565	13.0435	1.9565	86.9565	86.9565
15:85	20:80	12.3711	2.6289	17.5258	2.4742	87.6289	82.4742
15:85	25:75	11.6883	3.3117	22.0779	2.9221	88.3117	77.9221
15:85	30:70	10.9948	4.0052	26.7016	3.2984	89.0052	73.2984
15:85	35:65	10.2902	4.7098	31.3984	3.6016	89.6098	68.6016
15:85	40:60	9.5745	5.4255	36.1702	3.8298	90.4255	63.8298
15:85	45:55	8.8472	6.1528	41.0188	3.9812	91.1528	58.9812
15:85	50:50	8.1081	6.8919	45.9460	4.0541	91.8919	54.0541
15:85	55:45	7.3570	7.6431	50.9537	4.0463	92.6431	49.0463
15:85	60:40	6.5934	8.4066	56.0440	3.9560	93.4066	43.9560
15:85	65:35	5.8172	9.1828	61.2188	3.7812	94.1828	38.7812
15:85	70:30	5.0279	9.9721	66.4805	3.5196	94.9721	33.5196
15:85	75:25	4.2254	10.7747	71.8310	3.1690	95.7747	28.1690
15:85	80:20	3.4091	11.5909	77.2727	2.7273	96.5909	22.7273
15:85	85:15	2.5788	12.4212	82.8080	2.1920	97.4212	17.1920
15:85	90:10	1.7341	13.2659	88.4393	1.5607	98.2659	11.5607
15:85	95:5	0.8746	14.1254	94.1691	0.8309	99.1254	5.8309
15:85	100:0	0.0000	15.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
20:80	0:100	20.0000	0.0000	0.0000	0.0000	80.0000	100.0000
20:80	5:95	19.1919	0.8081	4.0404	0.9596	80.8081	95.9596
20:80	10:90	18.3674	1.6327	8.1633	1.8367	81.6327	91.8367
20:80	15:85	17.5258	2.4742	12.3711	2.6289	82.4742	87.6289
20:80	20:80	16.6667	3.3333	16.6667	3.3333	83.3333	83.3333
20:80	25:75	15.7895	4.2105	21.0526	3.9474	84.2105	78.9474
20:80	30:70	14.8936	5.1064	25.5319	4.4681	85.1064	74.4681
20:80	35:65	13.9785	6.0215	30.1075	4.8925	86.0215	69.8925
20:80	40:60	13.0435	6.9565	34.7826	5.2174	86.9565	65.2174
20:80	45:55	12.0879	7.9121	39.5604	5.4396	87.9121	60.4396
20:80	50:50	11.1111	8.8889	44.4444	5.5556	88.8889	55.5556
20:80	55:45	10.1124	9.8876	49.4382	5.5618	89.8876	50.5618
20:80	60:40	9.0909	10.9091	54.5455	5.4546	90.9091	45.4546
20:80	65:35	8.0460	11.9540	59.7701	5.2299	91.9540	40.2299
20:80	70:30	6.9767	13.0233	65.1163	4.8837	93.0233	34.8837
20:80	75:25	5.8824	14.1177	70.5882	4.4118	94.1176	29.4118
20:80	80:20	4.7619	15.2381	76.1905	3.8095	95.2381	23.8095
20:80	85:15	3.6145	16.3855	81.9277	3.0723	96.3855	18.0723
20:80	90:10	2.4390	17.5610	87.8049	2.1951	97.5610	12.1951
20:80	95:5	1.2346	18.7654	93.8272	1.1728	98.7654	6.1728
20:80	100:0	0.0000	20.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
25:75	0:100	25.0000	0.0000	0.0000	0.0000	75.0000	100.0000
25:75	5:95	24.0506	0.9494	3.7975	1.2025	75.9494	96.2025
25:75	10:90	23.0769	1.9231	7.6923	2.3077	76.9231	92.3077
25:75	15:85	22.0779	2.9221	11.6883	3.3117	77.9221	88.3117
25:75	20:80	21.0526	3.9474	15.7895	4.2105	78.9474	84.2105
25:75	25:75	20.0000	5.0000	20.0000	5.0000	80.0000	80.0000
25:75	30:70	18.9189	6.0811	24.3243	5.6757	81.0811	75.6757
25:75	35:65	17.8082	7.1918	28.7671	6.2329	82.1918	71.2329
25:75	40:60	16.6667	8.3333	33.3333	6.6667	83.3333	66.6667
25:75	45:55	15.4930	9.5070	38.0282	6.9718	84.5070	61.9718
25:75	50:50	14.2857	10.7143	42.8571	7.1429	85.7143	57.1429
25:75	55:45	13.0435	11.9565	47.8261	7.1739	86.9565	52.1739
25:75	60:40	11.7647	13.2353	52.9412	7.0588	88.2353	47.0588
25:75	65:35	10.4478	14.5522	58.2090	6.7910	89.5522	41.7910
25:75	70:30	9.0909	15.9091	63.6364	6.3636	90.9091	36.3636
25:75	75:25	7.6923	17.3077	69.2308	5.7692	92.3077	30.7692
25:75	80:20	6.2500	18.7500	75.0000	5.0000	93.7500	25.0000
25:75	85:15	4.7619	20.2381	80.9524	4.0476	95.2381	19.0476
25:75	90:10	3.2258	21.7742	87.0968	2.9032	96.7742	12.9032
25:75	95:5	1.6393	23.3607	93.4426	1.5574	98.3607	6.5574
25:75	100:0	0.0000	25.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
30:70	0:100	30.0000	0.0000	0.0000	0.0000	70.0000	100.0000
30:70	5:95	28.9340	1.0660	3.5533	1.4467	71.0660	96.4467
30:70	10:90	27.8351	2.1650	7.2165	2.7835	72.1650	92.7835
30:70	15:85	26.7016	3.2984	10.9948	4.0052	73.2984	89.0052
30:70	20:80	25.5319	4.4681	14.8936	5.1064	74.4681	85.1064
30:70	25:75	24.3243	5.6757	18.9189	6.0811	75.6757	81.0811
30:70	30:70	23.0769	6.9231	23.0769	6.9231	76.9231	76.9231
30:70	35:65	21.7877	8.2123	27.3743	7.6257	78.2123	72.6257
30:70	40:60	20.4546	9.5455	31.8182	8.1818	79.5455	68.1818
30:70	45:55	19.0751	10.9249	36.4162	8.5838	80.9249	63.5838
30:70	50:50	17.6471	12.3529	41.1765	8.8235	82.3529	58.8235
30:70	55:45	16.1677	13.8323	46.1078	8.8922	83.8323	53.8922
30:70	60:40	14.6341	15.3659	51.2195	8.7805	85.3659	48.7805
30:70	65:35	13.0435	16.9565	56.5217	8.4783	86.9565	43.4783
30:70	70:30	11.3924	18.6076	62.0253	7.9747	88.6076	37.9747
30:70	75:25	9.6774	20.3226	67.7419	7.2581	90.3226	32.2581
30:70	80:20	7.8947	22.1053	73.6842	6.3158	92.1053	26.3158
30:70	85:15	6.0403	23.9597	79.8658	5.1342	93.9597	20.1342
30:70	90:10	4.1096	25.8904	86.3014	3.6986	95.8904	13.6986
30:70	95:5	2.0979	27.9021	93.0070	1.9930	97.9021	6.9930
30:70	100:0	0.0000	30.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
35:65	0:100	35.0000	0.0000	0.0000	0.0000	75.0000	100.0000
35:65	5:95	33.8422	1.1578	3.3079	1.6921	66.1578	96.6921
35:65	10:90	32.6425	2.3575	6.7358	3.2643	67.3575	93.2643
35:65	15:85	31.3984	3.6016	10.2902	4.7098	68.6016	89.7098
35:65	20:80	30.1075	4.8925	13.9785	6.0215	69.8925	86.0215
35:65	25:75	28.7671	6.2329	17.8082	7.1918	71.2329	82.1918
35:65	30:70	27.3743	7.6257	21.7877	8.2123	72.6257	78.2123
35:65	35:65	25.9259	9.0741	25.9259	9.0741	74.0741	74.0741
35:65	40:60	24.4186	10.5814	30.2326	9.7674	75.5814	69.7674
35:65	45:55	22.8487	12.1513	34.7181	10.2819	77.1413	65.2819
35:65	50:50	21.2121	13.7879	39.3939	10.6061	78.7879	60.6061
35:65	55:45	19.5046	15.4954	44.2725	10.7276	80.4954	55.7276
35:65	60:40	17.7215	17.2785	49.3671	10.6329	82.2785	50.6329
35:65	65:35	15.8576	19.1424	54.6926	10.3074	84.1424	45.3074
35:65	70:30	13.9073	21.0927	60.2649	9.7351	86.0927	39.7351
35:65	75:25	11.8644	23.1356	66.1017	8.8983	88.1356	33.8983
35:65	80:20	9.7222	25.2778	72.2222	7.7778	90.2778	27.7778
35:65	85:15	7.4733	27.5267	78.6477	6.3523	92.5267	21.3523
35:65	90:10	5.1095	29.8905	85.4015	4.5985	94.8905	14.5985
35:65	95:5	2.6217	32.3783	92.5094	2.4906	97.3783	7.4906
35:65	100:0	0.0000	35.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
40:60	0:100	40.0000	0.0000	0.0000	0.0000	60.0000	100.0000
40:60	5:95	38.7755	1.2245	3.0612	1.9388	61.2245	96.9388
40:60	10:90	37.5000	2.5000	6.2500	3.7500	62.5000	93.7500
40:60	15:85	36.1702	3.8298	9.5745	5.4255	63.8298	90.4255
40:60	20:80	34.7826	5.2174	13.0435	6.9565	65.2174	86.9565
40:60	25:75	33.3333	6.6667	16.6667	8.3333	66.6667	83.3333
40:60	30:70	31.8182	8.1818	20.4546	9.5455	68.1818	79.5455
40:60	35:65	30.2326	9.7674	24.4186	10.5814	69.7674	75.5814
40:60	40:60	28.5714	11.4286	28.5714	11.4286	71.4286	71.4286
40:60	45:55	26.8293	13.1707	32.9268	12.0732	73.1707	67.0732
40:60	50:50	25.0000	15.0000	37.5000	12.5000	75.0000	62.5000
40:60	55:45	23.0769	16.9231	42.3077	12.6923	76.9231	57.6923
40:60	60:40	21.0526	18.9474	47.3684	12.6316	78.9474	52.6316
40:60	65:35	18.9189	21.0811	52.7027	12.2973	81.0811	47.2973
40:60	70:30	16.6667	23.3333	58.3333	11.6667	83.3333	41.6667
40:60	75:25	14.2857	25.7143	64.2857	10.7143	85.7143	35.7143
40:60	80:20	11.7647	28.2353	70.5882	9.4118	88.2353	29.4118
40:60	85:15	9.0909	30.9091	77.2727	7.7273	90.9091	22.7273
40:60	90:10	6.2500	33.7500	84.3750	5.6250	93.7500	15.6250
40:60	95:5	3.2258	36.7742	91.9355	3.0645	96.7742	8.0645
40:60	100:0	0.0000	40.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
45:55	0:100	45.0000	0.0000	0.0000	0.0000	55.0000	100.0000
45:55	5:95	43.7340	1.2660	2.8133	2.1867	56.2660	97.1867
45:55	10:90	42.4084	2.5916	5.7592	4.2408	57.5916	94.2408
45:55	15:85	41.0188	3.9812	8.8472	6.1528	58.9812	91.1528
45:55	20:80	39.5604	5.4396	12.0879	7.9121	60.4396	87.9121
45:55	25:75	38.0282	6.9718	15.4930	9.5070	61.9718	84.5070
45:55	30:70	36.4162	8.5838	19.0751	10.9249	63.5838	80.9249
45:55	35:65	34.7181	10.2819	22.8487	12.1513	65.2819	77.1513
45:55	40:60	32.9268	12.0732	26.8293	13.1707	67.0732	73.1707
45:55	45:55	31.0345	13.9655	31.0345	13.9655	68.9655	68.9655
45:55	50:50	29.0323	15.9677	35.4839	14.5161	70.9677	65.5161
45:55	55:45	26.9103	18.0897	40.1993	14.8007	73.0897	59.8007
45:55	60:40	24.6575	20.3425	45.2055	14.7945	75.3425	54.7945
45:55	65:35	22.2615	22.7385	50.5300	14.4700	77.7385	49.4700
45:55	70:30	19.7080	25.2920	56.2044	13.7956	80.2920	43.7956
45:55	75:25	16.9811	28.0189	62.2642	12.7359	83.0189	37.7359
45:55	80:20	14.0625	30.9375	68.7500	11.2500	85.9375	31.2500
45:55	85:15	10.9312	34.0688	75.7085	9.2915	89.0688	24.2915
45:55	90:10	7.5630	37.4370	83.1933	6.8067	92.4370	16.8067
45:55	95:5	3.9301	41.0699	91.2644	3.7336	96.0699	8.7336
45:55	100:0	0.0000	45.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
50:50	0:100	50.0000	0.0000	0.0000	0.0000	50.0000	100.0000
50:50	5:95	48.7180	1.2821	2.5641	2.4359	51.2821	97.4359
50:50	10:90	47.3684	2.6316	5.2632	4.7368	52.6316	94.7368
50:50	15:85	45.9460	4.0541	8.1081	6.8919	54.0541	91.8919
50:50	20:80	44.4444	5.5556	11.1111	8.8889	55.5556	88.8889
50:50	25:75	42.8571	7.1429	14.2857	10.7143	57.1429	85.7143
50:50	30:70	41.1765	8.8235	17.6471	12.3529	58.8235	82.3529
50:50	35:65	39.3939	10.6061	21.2121	13.7879	60.6061	78.7879
50:50	40:60	37.5000	12.5000	25.0000	15.0000	62.5000	75.0000
50:50	45:55	35.4839	14.5161	29.0323	15.9677	64.5161	70.9677
50:50	50:50	33.3333	16.6667	33.3333	16.6667	66.6667	66.6667
50:50	55:45	31.0345	18.9655	37.9310	17.0690	68.9655	62.0690
50:50	60:40	28.5714	21.4286	42.8571	17.1429	71.4286	57.1429
50:50	65:35	25.9259	24.0741	48.1481	16.8519	74.0741	51.8519
50:50	70:30	23.0769	26.9231	53.8462	16.1539	76.9231	46.1539
50:50	75:25	20.0000	30.0000	60.0000	15.0000	80.0000	40.0000
50:50	80:20	16.6667	33.3333	66.6667	13.3333	83.3333	33.3333
50:50	85:15	13.0435	36.9565	73.9130	11.0870	86.9565	26.0870
50:50	90:10	9.0909	40.9091	81.8182	8.1818	90.9091	18.1818
50:50	95:5	4.7619	45.2381	90.4762	4.5238	95.2381	9.5238
50:50	100:0	0.0000	50.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
55:45	0:100	55.0000	0.0000	0.0000	0.0000	45.0000	100.0000
55:45	5:95	53.7275	1.2725	2.3136	2.6864	46.2725	97.6864
55:45	10:90	52.3810	2.6191	4.7619	5.2381	47.6191	95.2381
55:45	15:85	50.9537	4.0463	7.3570	7.6431	49.0463	92.6431
55:45	20:80	49.4382	5.5618	10.1124	9.8876	50.5618	89.8876
55:45	25:75	47.8261	7.1739	13.0435	11.9565	52.1739	86.9565
55:45	30:70	46.1078	8.8922	16.1677	13.8323	53.8922	83.8323
55:45	35:65	44.2725	10.7276	19.5046	15.4954	55.7276	80.4954
55:45	40:60	42.3077	12.6923	23.0769	16.9231	57.6923	76.9231
55:45	45:55	40.1993	14.8007	26.9103	18.0897	59.8007	83.0897
55:45	50:50	37.9310	17.0690	31.0345	18.9655	62.0690	68.9655
55:45	55:45	35.4839	19.5161	35.4839	19.5161	64.5161	64.5161
55:45	60:40	32.8358	22.1642	40.2985	19.7015	67.1642	59.7015
55:45	65:35	29.9611	25.0389	45.5253	19.4747	70.0389	54.4747
55:45	70:30	26.8293	28.1707	51.2195	18.7805	73.1707	48.7805
55:45	75:25	23.4043	31.5957	57.4468	17.5532	76.5957	42.5532
55:45	80:20	19.6429	35.3571	64.2857	15.7143	80.3571	35.7143
55:45	85:15	15.4930	39.5070	71.8310	13.1690	84.5070	28.1690
55:45	90:10	10.8911	44.1089	80.1980	9.8020	89.1089	19.8020
55:45	95:5	5.7592	49.2408	89.5288	5.4712	94.2408	10.4712
55:45	100:0	0.0000	55.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
60:40	0:100	60.0000	0.0000	0.0000	0.0000	40.0000	100.0000
60:40	5:95	58.7629	1.2371	2.0619	2.9381	41.2371	97.9381
60:40	10:90	57.4468	2.5532	4.2553	5.7447	42.5532	95.7447
60:40	15:85	56.0440	3.9560	6.5934	8.4066	43.9560	93.4066
60:40	20:80	54.5455	5.4546	9.0909	10.9091	45.4546	90.9091
60:40	25:75	52.9412	7.0588	11.7647	13.2353	47.0588	88.2353
60:40	30:70	51.2195	8.7805	14.6342	15.3659	48.7805	85.3659
60:40	35:65	49.3671	10.6329	17.7215	17.2785	50.6329	82.2785
60:40	40:60	47.3684	12.6316	21.0526	18.9474	52.6316	78.9474
60:40	45:55	45.2055	14.7945	24.6575	20.3425	54.7945	75.3425
60:40	50:50	42.8571	17.1429	28.5714	21.4286	57.1429	71.4286
60:40	55:45	40.2985	19.7015	32.8358	22.1642	59.7015	67.1642
60:40	60:40	37.5000	22.5000	37.5000	22.5000	62.5000	62.5000
60:40	65:35	34.4262	25.5738	42.6230	22.3771	65.5738	57.3771
60:40	70:30	31.0345	28.9655	48.2759	21.7241	68.9655	51.7241
60:40	75:25	27.2727	32.7273	54.5455	20.4546	72.7273	45.4546
60:40	80:20	23.0769	36.9231	61.5385	18.4615	76.9231	38.4615
60:40	85:15	18.3674	41.6327	69.3878	15.6122	81.6327	30.6122
60:40	90:10	13.0435	46.9565	78.2609	11.7391	86.9565	21.7391
60:40	95:5	6.9767	53.0233	88.3721	6.6279	93.0233	11.6279
60:40	100:0	0.0000	60.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
65:35	0:100	65.0000	0.0000	0.0000	0.0000	35.0000	100.0000
65:35	5:95	63.8243	1.1757	1.8088	3.1912	36.1757	98.1912
65:35	10:90	62.5668	2.4332	3.7433	6.2567	37.4332	96.2567
65:35	15:85	61.2188	3.7812	5.8172	9.1828	38.7812	94.1828
65:35	20:80	59.7701	5.2299	8.0460	11.9540	40.2299	91.9540
65:35	25:75	58.2090	6.7910	10.4478	14.5522	41.7910	89.5522
65:35	30:70	56.5217	8.4783	13.0435	16.9565	43.4783	86.9565
65:35	35:65	54.6926	10.3074	15.8576	19.1424	45.3074	84.1424
65:35	40:60	52.7027	12.2973	18.9189	21.0811	47.2973	81.0811
65:35	45:55	50.5300	14.4700	22.2615	22.7385	49.4700	77.7385
65:35	50:50	48.1482	16.8519	25.9259	24.0741	51.8519	74.0741
65:35	55:45	45.5253	19.4747	29.9611	25.0389	54.4747	70.0389
65:35	60:40	42.6230	22.3771	34.4262	25.5738	57.3771	65.5738
65:35	65:35	39.3940	25.6061	39.3940	25.6061	60.6061	60.6061
65:35	70:30	35.7798	29.2202	44.9541	25.0459	64.2202	55.0459
65:35	75:25	31.7073	33.2927	51.2195	23.7805	68.2927	48.7805
65:35	80:20	27.0833	37.9167	58.3333	21.6667	72.9167	41.6667
65:35	85:15	21.7877	43.2123	66.4805	18.5196	78.2123	33.5196
65:35	90:10	15.6627	49.3373	75.9036	14.0964	84.3373	24.0964
65:35	95:5	8.4967	56.5033	86.9281	8.0719	91.5033	13.0719
65:35	100:0	0.0000	65.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
70:30	0:100	70.0000	0.0000	0.0000	0.0000	30.0000	100.0000
70:30	5:95	68.9119	1.0881	1.5544	3.4456	31.0881	98.4456
70:30	10:90	67.7419	2.2581	3.2258	6.7742	32.2581	96.7742
70:30	15:85	66.4805	3.5196	5.0279	9.9721	33.5196	94.9721
70:30	20:80	65.1163	4.8837	6.9767	13.0233	34.8837	93.0233
70:30	25:75	63.6364	6.3636	9.0909	15.9091	36.3636	90.9091
70:30	30:70	62.0253	7.9747	11.3924	18.6076	37.9747	88.6076
70:30	35:65	60.2649	9.7351	13.9073	21.0927	39.7351	86.0927
70:30	40:60	58.3333	11.6667	16.6667	23.3333	41.6667	83.3333
70:30	45:55	56.2044	13.7956	19.7080	25.2920	43.7956	80.2920
70:30	50:50	53.8462	16.1539	23.0769	26.9231	46.1539	76.9231
70:30	55:45	51.2195	18.7805	26.8293	28.1707	48.7805	73.1707
70:30	60:40	48.2759	21.7241	31.0345	28.9655	51.7241	68.9655
70:30	65:35	44.9541	25.0459	35.7798	29.2202	55.0459	64.2202
70:30	70:30	41.1766	28.8235	41.1765	28.8235	58.8235	58.8235
70:30	75:25	36.8421	33.1579	47.3684	27.6316	63.1579	52.6316
70:30	80:20	31.8182	38.1818	54.5455	25.4546	68.1818	45.4546
70:30	85:15	25.9259	44.0741	62.9630	22.0370	74.0741	37.0370
70:30	90:10	18.9189	51.0811	72.9730	17.0270	81.0811	27.0270
70:30	95:5	10.4478	59.5522	85.0746	9.9254	89.5522	14.9254
70:30	100:0	0.0000	70.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
75:25	0:100	75.0000	0.0000	0.0000	0.0000	25.0000	100.0000
75:25	5:95	74.0260	0.9740	1.2987	3.7013	25.9740	98.7013
75:25	10:90	72.9730	2.0270	2.7027	7.2973	27.0270	97.2973
75:25	15:85	71.8310	3.1690	4.2254	10.7747	28.1690	95.7747
75:25	20:80	70.5882	4.4118	5.8824	14.1177	29.4118	94.1177
75:25	25:75	69.2308	5.7692	7.6923	17.3077	30.7692	92.3077
75:25	30:70	67.7419	7.2581	9.6774	20.3226	32.2581	90.3226
75:25	35:65	66.1017	8.8983	11.8644	23.1356	33.8983	88.1356
75:25	40:60	64.2857	10.7143	14.2857	25.7143	35.7143	85.7143
75:25	45:55	62.2642	12.7359	16.9811	28.0189	37.7359	83.0189
75:25	50:50	60.0000	15.0000	20.0000	30.0000	40.0000	80.0000
75:25	55:45	57.4468	17.5532	23.4043	31.5957	42.5532	76.5957
75:25	60:40	54.5455	20.4546	27.2727	32.7273	45.4546	72.7273
75:25	65:35	51.2195	23.7805	31.7073	33.2927	48.7805	68.2927
75:25	70:30	47.3684	27.6316	36.8421	33.1579	52.6316	63.1579
75:25	75:25	42.8571	32.1429	42.8571	32.1429	57.1429	57.1429
75:25	80:20	37.5000	37.5000	50.0000	30.0000	62.5000	50.0000
75:25	85:15	31.0345	43.9655	58.6207	26.3793	68.9655	41.3793
75:25	90:10	23.0769	51.9231	69.2308	20.7692	76.9231	30.7692
75:25	95:5	13.0435	61.9565	82.6087	12.3913	86.9565	17.3913
75:25	100:0	0.0000	75.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
80:20	0:100	80.0000	0.0000	0.0000	0.0000	20.0000	100.0000
80:20	5:95	79.1667	0.8333	1.0417	3.9583	20.8333	98.9583
80:20	10:90	78.2609	1.7391	2.1739	7.8261	21.7391	97.8261
80:20	15:85	77.2727	2.7273	3.4091	11.5909	22.7273	96.5909
80:20	20:80	76.1905	3.8095	4.7619	15.2381	23.8095	95.2381
80:20	25:75	75.0000	5.0000	6.2500	18.7500	25.0000	93.7500
80:20	30:70	73.6842	6.3158	7.8947	22.1052	26.3158	92.1053
80:20	35:65	72.2222	7.7778	9.7222	25.2778	27.7778	90.2778
80:20	40:60	70.5882	9.4118	11.7647	28.2353	29.4118	88.2353
80:20	45:55	68.7500	11.2500	14.0625	30.9375	31.2500	85.9375
80:20	50:50	66.6667	13.3333	16.6667	33.3333	33.3333	83.3333
80:20	55:45	64.2857	15.7143	19.6429	35.3571	35.7143	80.3571
80:20	60:40	61.5385	18.4615	23.0769	36.9231	38.4615	76.9231
80:20	65:35	58.3333	21.6667	27.0833	37.9167	41.6667	72.9167
80:20	70:30	54.5455	25.4546	31.8182	38.1818	45.4546	68.1818
80:20	75:25	50.0000	30.0000	37.5000	37.5000	50.0000	62.5000
80:20	80:20	44.4444	35.5556	44.4444	35.5556	55.5556	55.5556
80:20	85:15	37.5000	42.5000	53.1250	31.8750	62.5000	46.8750
80:20	90:10	28.5714	51.4286	64.2857	25.7143	71.4286	35.7143
80:20	95:5	16.6667	63.3333	79.1667	15.8333	83.3333	20.8333
80:20	100:0	0.0000	80.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
85:15	0:100	85.0000	0.0000	0.0000	0.0000	15.0000	100.0000
85:15	5:95	84.3342	0.6658	0.7833	4.2167	15.6658	99.2167
85:15	10:90	83.6066	1.3934	1.6393	8.3607	16.3934	98.3607
85:15	15:85	82.8080	2.1920	2.5788	12.4212	17.1920	97.4212
85:15	20:80	81.9277	3.0723	3.6145	16.3855	18.0723	96.3855
85:15	25:75	80.9524	4.0476	4.7619	20.2381	19.0476	95.2381
85:15	30:70	79.8658	5.1342	6.0403	23.9597	20.1342	93.9597
85:15	35:65	78.6477	6.3523	7.4733	27.5267	21.3523	92.5267
85:15	40:60	77.2727	7.7273	9.0909	30.9091	22.7273	90.9091
85:15	45:55	75.7085	9.2915	10.9312	34.0688	24.2915	89.0688
85:15	50:50	73.9130	11.0870	13.0435	36.9565	26.0870	86.9565
85:15	55:45	71.8310	13.1690	15.4930	39.5070	28.1690	84.5070
85:15	60:40	69.3878	15.6122	18.3674	41.6327	30.6122	81.6327
85:15	65:35	66.4805	18.5196	21.7877	43.2123	33.5196	78.2123
85:15	70:30	62.9630	22.0370	25.9259	44.0741	37.0370	74.0741
85:15	75:25	58.6207	26.3793	31.0345	43.9655	41.3793	68.9655
85:15	80:20	53.1250	31.8750	37.5000	42.5000	46.8750	62.5000
85:15	85:15	45.9460	39.0541	45.9460	39.0541	54.0541	54.0541
85:15	90:10	36.1702	48.8298	57.4468	32.5532	63.8298	42.5532
85:15	95:5	22.0779	62.9221	74.0260	20.9740	77.9221	25.9740
85:15	100:0	0.0000	85.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
90:10	0:100	90.0000	0.0000	0.0000	0.0000	10.0000	100.0000
90:10	5:95	89.5288	0.4712	0.5236	4.4764	10.4712	99.4764
90:10	10:90	89.0110	0.9890	1.0989	8.9011	10.9890	98.9011
90:10	15:85	88.4393	1.5607	1.7341	13.2659	11.5607	98.2659
90:10	20:80	87.8049	2.1951	2.4390	17.5610	12.1951	97.5610
90:10	25:75	87.0968	2.9032	3.2258	21.7742	12.9032	96.7742
90:10	30:70	86.3014	3.6986	4.1096	25.8904	13.6986	95.8904
90:10	35:65	85.4015	4.5985	5.1095	29.8905	14.5985	94.8905
90:10	40:60	84.3750	5.6250	6.2500	33.7500	15.6250	93.7500
90:10	45:55	83.1933	6.8067	7.5630	37.4370	16.8067	92.4370
90:10	50:50	81.8182	8.1818	9.0909	40.9091	18.1818	90.9091
90:10	55:45	80.1980	9.8020	10.8911	44.1089	19.8020	89.1089
90:10	60:40	78.2609	11.7391	13.0435	46.9565	21.7391	86.9565
90:10	65:35	75.9036	14.0964	15.6627	49.3374	24.0964	84.3374
90:10	70:30	72.9730	17.0270	18.9189	51.0811	27.0270	81.0811
90:10	75:25	69.2308	20.7692	23.0769	51.9231	30.7692	76.9231
90:10	80:20	64.2857	25.7143	28.5714	51.4286	35.7143	71.4286
90:10	85:15	57.4468	32.5532	36.1702	48.8298	42.5532	63.8298
90:10	90:10	47.3684	42.6316	47.3684	42.6316	52.6316	52.6316
90:10	95:5	31.0345	58.9655	65.5172	29.4828	68.9655	34.4828
90:10	100:0	0.0000	90.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
95:5	0:100	95.0000	0.0000	0.0000	0.0000	5.0000	100.0000
95:5	5:95	94.7507	0.2493	0.2625	4.7375	5.2493	99.7375
95:5	10:90	94.4751	0.5249	0.5525	9.4475	5.5249	99.4475
95:5	15:85	94.1691	0.8309	0.0746	14.1254	5.8309	99.1254
95:5	20:80	93.8272	1.1728	1.2346	18.7654	6.1728	98.7654
95:5	25:75	93.4426	1.5574	1.6393	23.3607	6.5574	98.3607
95:5	30:70	93.0070	1.9930	2.0979	27.9021	6.9930	97.9021
95:5	35:65	92.5094	2.4906	2.6217	32.3783	7.4906	97.3783
95:5	40:60	91.9355	3.0645	3.2258	36.7742	8.0645	96.7742
95:5	45:55	91.2664	3.7336	3.9301	41.0699	8.7336	96.0699
95:5	50:50	90.4762	4.5238	4.7619	45.2381	9.5238	95.2381
95:5	55:45	89.5288	5.4712	5.7592	49.2408	10.4712	94.2408
95:5	60:40	88.3721	6.6279	6.9767	53.0233	11.6279	93.0233
95:5	65:35	86.9281	8.0719	8.4967	56.5033	13.0719	91.5033
95:5	70:30	85.0746	9.9254	10.4478	59.5522	14.9254	89.5522
95:5	75:25	82.6087	12.3913	13.0435	61.9565	17.3913	86.9565
95:5	80:20	79.1667	15.8333	16.6667	63.3333	20.8333	83.3333
95:5	85:15	74.0260	20.9740	22.0779	62.9221	25.9740	77.9221
95:5	90:10	65.5172	29.4828	31.0345	58.9655	34.4828	68.9655
95:5	95:5	48.7180	46.2821	48.7180	46.2821	51.2821	51.2821
95:5	100:0	0.0000	95.0000	100.0000	0.0000	100.0000	0.0000

TABLE 2

POINTS ORIGINATING FROM MEMBER, ARRIVING AT MEMBER'S STATION AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM ORIGINATING MEMBER TO OPTION)

a:c	b:d	ABO	AAO	BAO	BBO	c+AAO	d+BBO
100:0	0:100	100.0000	0.0000	0.0000	0.0000	0.0000	100.0000
100:0	5:95	100.0000	0.0000	0.0000	5.0000	0.0000	100.0000
100:0	10:90	100.0000	0.0000	0.0000	10.0000	0.0000	100.0000
100:0	15:85	100.0000	0.0000	0.0000	15.0000	0.0000	100.0000
100:0	20:80	100.0000	0.0000	0.0000	20.0000	0.0000	100.0000
100:0	25:75	100.0000	0.0000	0.0000	25.0000	0.0000	100.0000
100:0	30:70	100.0000	0.0000	0.0000	30.0000	0.0000	100.0000
100:0	35:65	100.0000	0.0000	0.0000	35.0000	0.0000	100.0000
100:0	40:60	100.0000	0.0000	0.0000	40.0000	0.0000	100.0000
100:0	45:55	100.0000	0.0000	0.0000	45.0000	0.0000	100.0000
100:0	50:50	100.0000	0.0000	0.0000	50.0000	0.0000	100.0000
100:0	55:45	100.0000	0.0000	0.0000	55.0000	0.0000	100.0000
100:0	60:40	100.0000	0.0000	0.0000	60.0000	0.0000	100.0000
100:0	65:35	100.0000	0.0000	0.0000	65.0000	0.0000	100.0000
100:0	70:30	100.0000	0.0000	0.0000	70.0000	0.0000	100.0000
100:0	75:25	100.0000	0.0000	0.0000	75.0000	0.0000	100.0000
100:0	80:20	100.0000	0.0000	0.0000	80.0000	0.0000	100.0000
100:0	85:15	100.0000	0.0000	0.0000	85.0000	0.0000	100.0000
100:0	90:10	100.0000	0.0000	0.0000	90.0000	0.0000	100.0000
100:0	95:5	100.0000	0.0000	0.0000	95.0000	0.0000	100.000
100:0	100:0						

TABLE 3 AND PAYOFF MATRIX

The third and final table consists of four columns and refers to those points originating from G (both A and B), arriving at either player's station and going on to the options. The direct points from each member to the options is also included.

Meaning of Table 3 Headings

a: the number of points that player A allocated to player B

c: the number of points that player A allocated to options

b: the number of points that player B allocated to player A

d: the number of points that player B allocated to options

GAO: the sum of all points that originate solely from the points that player A allocated to player B's station or that player B allocated to player A's station and that flow from player A's station to the options during the cycles

GBO: the sum of all points that originate solely from the points that player A allocated to player B's station or that player B allocated to player A's station and that flow from player B's station to the options during the cycles

c + GAO: the sum of all points that flow, on the first or later cycles, from player A to the options

d + GBO: the sum of all points that flow, on the first or later cycles, from player B to the options

Formulas Used in Arriving at Table 3 Values

GAO: $\frac{c}{100} + GA$

GBO: $\frac{d}{100} + GB$

c + GAO: c + GAO

d + GBO: d + GAO

The values in Table 3 are those actually used in calculating the individual and group averages in dyadic-SPAN and the values that are used in determining the outcomes of EPD games. A player's average was calculated after he chose between zero and twenty units of cooperation in EPD and divided his 100 points (in multiples of five) between his confidence in his own choice and his confidence in his partner's abilities. A sample computation of dyadic-SPAN values as used in the EPD game follows:

	Number of Blue Chips Showing	Confidence in Your Own Choice	Confidence in Your Partner's Choice
TEAM 1			
Player A	4	30	70
Player B	13	85	15
TEAM 2			
Player A	10	20	80
Player B	2	60	40

Team 1's dyadic-SPAN average is calculated by referring to the c + GAO and d + GBO entries in Table 3. In row 70:30, 15:85 the values of these columns are 38.5475 and 161.4525 respectively.

The first of these numbers is multiplied by the number of chips player A chose to turn to the blue side, the second the number of chips player B decided to turn to the blue side. These two products are then averaged, the result being the team choice. In this case, the team choice was 11.2649, rounded to 11. Team 2's dyadic-SPAN average is calculated similarly, but using the 80:20, 40:60 row of Table 3. Their dyadic-SPAN average amounts to 3.697, rounded to 4. The Payoff Matrix, shown in Figure 1, is now consulted in order to determine each team's payoff. If the entire Payoff Matrix were shown, it could be seen that team 1 loses 3 units and team 2 wins 18. In general, if both teams decide to turn over the same number of blue chips, both teams win a number of units equal to the number of blue chips. When a disparity arises, that team with fewer blue chips receives an additional payoff. The Payoff Matrix is presented below, followed by Table 2.

Fig. 1. Abbreviated Payoff Matrix

		Number of Blue Chips Other Team Chooses				
		0	5	10	15	20
Number of Blue Chips Your Team Chooses	0	0,0	10,-5	20,-10	30,-15	40,-20
	5	-5,10	5,5	15,0	25,-5	35,-10
	10	-10,20	0,15	10,10	20,5	30,0
	15	-15,30	-5,25	5,20	15,15	25,10
	20	-20,40	-10,35	0,30	10,25	20,20

(First number refers to your team's payoff, second number to other team's payoff.)

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
0:100	0:100	0.0000	0.0000	100.0000	100.0000
0:100	5:95	5.0000	0.0000	105.0000	95.0000
0:100	10:90	10.0000	0.0000	110.0000	90.0000
0:100	15:85	15.0000	0.0000	115.0000	85.0000
0:100	20:80	20.0000	0.0000	120.0000	80.0000
0:100	25:75	25.0000	0.0000	125.0000	75.0000
0:100	30:70	30.0000	0.0000	130.0000	70.0000
0:100	35:65	35.0000	0.0000	135.0000	65.0000
0:100	40:60	40.0000	0.0000	140.0000	60.0000
0:100	45:55	45.0000	0.0000	145.0000	55.0000
0:100	50:50	50.0000	0.0000	150.0000	50.0000
0:100	55:45	55.0000	0.0000	155.0000	45.0000
0:100	60:40	60.0000	0.0000	160.0000	40.0000
0:100	65:35	65.0000	0.0000	165.0000	35.0000
0:100	70:30	70.0000	0.0000	170.0000	30.0000
0:100	75:25	75.0000	0.0000	175.0000	25.0000
0:100	80:20	80.0000	0.0000	180.0000	20.0000
0:100	85:15	85.0000	0.0000	185.0000	15.0000
0:100	90:10	90.0000	0.0000	190.0000	10.0000
0:100	95:5	95.0000	0.0000	195.0000	5.0000
0:100	100:0	100.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
5:95	0:100	0.0000	5.0000	95.0000	105.0000
5:95	5:95	5.0000	5.0000	100.0000	100.0000
5:95	10:90	10.0251	4.9749	105.0251	94.9749
5:95	15:85	15.0756	4.9244	110.0756	89.9244
5:95	20:80	20.1515	4.8485	115.1515	84.8485
5:95	25:75	25.2532	4.7468	120.2532	79.7468
5:95	30:70	30.3807	4.6193	125.3807	74.6193
5:95	35:65	35.5344	4.4657	130.5344	69.4656
5:95	40:60	40.7143	4.2857	135.7143	64.2857
5:95	45:55	45.9207	4.0793	140.9207	59.0793
5:95	50:50	51.1539	3.8462	146.1538	53.8462
5:95	55:45	56.4139	3.5861	151.4139	48.5861
5:95	60:40	61.7010	3.2990	156.7010	43.2990
5:95	65:35	67.0155	2.9845	162.0155	37.9845
5:95	70:30	72.3575	2.6425	167.3575	32.6425
5:95	75:25	77.7273	2.2727	172.7273	27.2727
5:95	80:20	83.1250	1.8750	178.1250	21.8750
5:95	85:15	88.5509	1.4491	183.5509	16.4491
5:95	90:10	94.0052	0.9948	189.0052	10.9948
5:95	95:5	99.4882	0.5118	194.4882	5.5118
5:95	100:0	105.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
10:90	0:100	0.0000	10.0000	90.0000	110.0000
10:90	5:95	4.9749	10.0251	94.9749	105.0251
10:90	10:90	10.0000	10.0000	100.0000	100.0000
10:90	15:85	15.0761	9.9239	105.0761	94.9239
10:90	20:80	20.2041	9.7959	110.2041	89.7959
10:90	25:75	25.3846	9.6154	115.3846	84.6154
10:90	30:70	30.6186	9.3814	120.6186	79.3814
10:90	35:65	35.9067	9.0933	125.9067	74.0933
10:90	40:60	41.2500	8.7500	131.2500	68.7500
10:90	45:55	46.6492	8.3508	136.6492	63.3508
10:90	50:50	52.1053	7.8947	142.1053	57.8947
10:90	55:45	57.6191	7.3810	147.6190	52.3810
10:90	60:40	63.1915	6.8085	153.1915	46.8085
10:90	65:35	68.8235	6.1765	158.8235	41.1765
10:90	70:30	74.5161	5.4839	164.5161	35.4839
10:90	75:25	80.2703	4.7297	170.2703	29.7297
10:90	80:20	86.0870	3.9130	176.0870	23.9130
10:90	85:15	91.9672	3.0328	181.9672	18.0328
10:90	90:10	97.9121	2.0879	187.9121	12.0879
10:90	95:5	103.9226	1.0774	193.9226	6.0774
10:90	100:0	110.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
15:85	0:100	0.0000	15.0000	85.0000	115.0000
15:85	5:95	4.9244	15.0756	89.9244	110.0756
15:85	10:90	9.9239	15.0761	94.9239	105.0761
15:85	15:85	15.0000	15.0000	100.0000	100.0000
15:85	20:80	20.1546	14.8454	105.1546	94.8454
15:85	25:75	25.3896	14.6104	110.3896	89.6104
15:85	30:70	30.7068	14.2932	115.7068	84.2932
15:85	35:65	36.1082	13.8918	121.1082	78.8918
15:85	40:60	41.5957	13.4043	126.5957	73.4043
15:85	45:55	47.1716	12.8284	132.1716	67.8284
15:85	50:50	52.8378	12.1622	137.8378	62.1622
15:85	55:45	58.5967	11.4033	143.5967	56.4033
15:85	60:40	64.4506	10.5495	149.4505	50.5495
15:85	65:35	70.4017	9.5983	155.4017	44.5983
15:85	70:30	76.4525	8.5475	161.4525	38.5475
15:85	75:25	82.6056	7.3944	167.6056	32.3944
15:85	80:20	88.8636	6.1364	173.8636	26.1364
15:85	85:15	95.2292	4.7708	180.2292	19.7708
15:85	90:10	101.7052	3.2948	186.7052	13.2948
15:85	95:5	108.2945	1.7055	193.2945	6.7055
15:85	100:0	115.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
20:80	0:100	0.0000	20.0000	80.0000	120.0000
20:80	5:95	4.8485	20.1515	84.8485	115.1515
20:80	10:90	9.7959	20.2041	89.7959	110.2041
20:80	15:85	14.8454	20.1546	94.8454	105.1546
20:80	20:80	20.0000	20.0000	100.0000	100.0000
20:80	25:75	25.2632	19.7368	105.2632	94.7368
20:80	30:70	30.6383	19.3617	110.6383	89.3617
20:80	35:65	36.1290	18.8710	116.1290	83.8710
20:80	40:60	41.7391	18.2609	121.7391	78.2609
20:80	45:55	47.4725	17.5275	127.4725	72.5275
20:80	50:50	53.3333	16.6667	133.3333	66.6667
20:80	55:45	59.3258	15.6742	139.3258	60.6742
20:80	60:40	65.4546	14.5455	145.4545	54.5455
20:80	65:35	71.7241	13.2759	151.7241	48.2759
20:80	70:30	78.1395	11.8605	158.1395	41.8605
20:80	75:25	84.7059	10.2941	164.7059	35.2941
20:80	80:20	91.4286	8.5714	171.4286	28.5714
20:80	85:15	98.3132	6.6868	178.3132	21.6868
20:80	90:10	105.3658	4.6342	185.3658	14.6342
20:80	95:5	112.5926	2.4074	192.5926	7.4074
20:80	100:0	120.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
25:75	0:100	0.0000	25.0000	75.0000	125.0000
25:75	5:95	4.7468	25.2532	79.7468	120.2532
25:75	10:90	9.6154	25.3846	84.6154	115.3846
25:75	15:85	14.6104	25.3896	89.6104	110.3896
25:75	20:80	19.7368	25.2632	94.7368	105.2632
25:75	25:75	25.0000	25.0000	100.0000	100.0000
25:75	30:70	30.4054	24.5946	105.4054	94.5946
25:75	35:65	35.9589	24.0411	110.9589	89.0411
25:75	40:60	41.6667	23.3333	116.6667	83.3333
25:75	45:55	47.5352	22.4648	122.5352	77.4648
25:75	50:50	53.5714	21.4286	128.5714	71.4286
25:75	55:45	59.7826	20.2174	134.7826	65.2174
25:75	60.40	66.1765	18.8235	141.1765	58.8235
25:75	65:35	72.7612	17.2388	147.7612	52.2388
25:75	70:30	79.5455	15.4545	154.5455	45.4545
25:75	75:25	86.5385	13.4615	161.5385	38.4615
25:75	80:20	93.7500	11.2500	168.7500	31.2500
25:75	85:15	101.1905	8.8095	176.1905	23.8095
25:75	90:10	108.8710	6.1290	183.8710	16.1290
25:75	95:5	116.8033	3.1967	191.8033	8.1967
25:75	100:0	125.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
30:70	0:100	0.0000	30.0000	70.0000	130.0000
30:70	5:95	4.6193	30.3807	74.6193	125.3807
30:70	10:90	9.3814	30.6186	79.3814	120.6186
30:70	15:85	14.2932	30.7068	84.2932	115.7068
30:70	20:80	19.3617	30.6383	89.3617	110.6383
30:70	25:75	24.5946	30.4054	94.5946	105.4054
30:70	30:70	30.0000	30.0000	100.0000	100.0000
30:70	35:65	35.5866	29.4134	105.5866	94.4134
30:70	40:60	41.3636	28.6364	111.3636	88.6364
30:70	45:55	47.3410	27.6590	117.3410	82.6590
30:70	50:50	53.5294	26.4706	123.5294	76.4706
30:70	55:45	59.9401	25.0599	129.9401	70.0599
30:70	60:40	66.5854	23.4146	136.5854	63.4146
30:70	65:35	73.4783	21.5217	143.4783	56.5217
30:70	70:30	80.6329	19.3671	150.6329	49.3671
30:70	75:25	88.0645	16.9355	158.0645	41.9355
30:70	80:20	95.7895	14.2105	165.7895	34.2105
30:70	85:15	103.8255	11.1745	173.8255	26.1745
30:70	90:10	112.1918	7.8082	182.1918	17.8082
30:70	95:5	120.9091	4.0909	190.9091	9.0909
30:70	100:0	130.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
35:65	0:100	0.0000	35.0000	65.0000	135.0000
35:65	5:95	4.4657	35.5344	69.4657	130.5344
35:65	10:90	9.0933	35.9067	74.0933	125.9067
35:65	15:85	13.8918	36.1082	78.8918	121.1082
35:65	20:80	18.8710	36.1290	83.8710	116.1290
35:65	25:75	24.0411	35.9589	89.0411	110.9589
35:65	30:70	29.4134	35.5866	94.4134	105.5866
35:65	35:65	35.0000	35.0000	100.0000	100.0000
35:65	40:60	40.8140	34.1860	105.8140	94.1860
35:65	45:55	46.8694	33.1306	111.8694	88.1306
35:65	50:50	53.1818	31.8182	118.1818	81.8182
35:65	55:45	59.7678	30.2322	124.7678	75.2322
35:65	60:40	66.6456	28.3544	131.6456	68.3544
35:65	65:35	73.8350	26.1650	138.8350	61.1650
35:65	70:30	81.3576	23.6424	146.3576	53.6424
35:65	75:25	89.2373	20.7627	154.2373	45.7627
35:65	80:20	97.5000	17.5000	162.5000	37.5000
35:65	85:15	106.1744	13.8256	171.1744	28.8256
35:65	90:10	115.2920	9.7080	180.2920	19.7080
35:65	95:5	124.8876	5.1124	189.8876	10.1124
35:65	100:0	135.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
40:60	0:100	0.0000	40.0000	60.0000	140.0000
40:60	5:95	4.2857	40.7143	64.2857	135.7143
40:60	10:90	8.7500	41.2500	68.7500	131.2500
40:60	15:85	13.4043	41.5957	73.4043	126.5957
40:60	20:80	18.2609	41.7391	78.2609	121.7391
40:60	25:75	23.3333	41.6667	83.3333	116.6667
40:60	30:70	28.6364	41.3636	88.6364	111.3636
40:60	35:65	34.1860	40.8140	94.1860	105.8140
40:60	40:60	40.0000	40.0000	100.0000	100.0000
40:60	45:55	46.0976	38.9024	106.0976	93.9024
40:60	50:50	52.5000	37.5000	112.5000	87.5000
40:60	55:45	59.2308	35.7692	119.2308	80.7692
40:60	60:40	66.3158	33.6842	126.3158	73.6842
40:60	65:35	73.7838	31.2162	133.7838	66.2162
40:60	70:30	81.6667	28.3333	141.6667	58.3333
40:60	75:25	90.0000	25.0000	150.0000	50.0000
40:60	80:20	98.8235	21.1765	158.8235	41.1765
40:60	85:15	108.1818	16.8182	168.1818	31.8182
40:60	90:10	118.1250	11.8750	178.1250	21.8750
40:60	95:5	128.7097	6.2903	188.7097	11.2903
40:60	100:0	140.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
45:55	0:100	0.0000	45.0000	55.0000	145.0000
45:55	5:95	4.0793	45.9207	59.0793	140.9207
45:55	10:90	8.3508	46.6492	63.3508	136.6492
45:55	15:85	12.8284	47.1716	67.8284	132.1716
45:55	20:80	17.5275	47.4725	72.5275	127.4725
45:55	25:75	22.4648	47.5352	77.4648	122.5352
45:55	30:70	27.6590	47.3410	82.6590	117.3410
45:55	35:65	33.1306	46.8694	88.1306	111.8694
45:55	40:60	38.9024	46.0976	93.9024	106.0976
45:55	45:55	45.0000	45.0000	100.0000	100.0000
45:55	50:50	51.4516	43.5484	106.4516	93.5484
45:55	55:45	58.2890	41.7110	113.2890	86.7110
45:55	60:40	65.5479	39.4521	120.5479	79.4521
45:55	65:35	73.2686	36.7314	128.2686	71.7314
45:55	70:30	81.4963	33.5037	136.4963	63.5037
45:55	75:25	90.2830	29.7170	145.2830	54.7170
45:55	80:20	99.6875	25.3125	154.6875	45.3125
45:55	85:15	109.7773	20.2227	164.7773	35.2227
45:55	90:10	120.6302	14.3698	175.6302	24.3698
45:55	95:5	132.3362	7.6638	187.3362	12.6638
45:55	100:0	145.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
50:50	0:100	0.0000	50.0000	50.0000	150.0000
50:50	5:95	3.8462	51.1539	53.8462	146.1538
50:50	10:90	7.8947	52.1053	57.8947	152.1053
50:50	15:85	12.1622	52.8378	62.1622	137.8378
50:50	20:80	16.6667	53.3333	66.6667	133.3333
50:50	25:75	21.4286	53.5714	71.4286	128.5714
50:50	30:70	26.4706	53.5294	76.4706	123.5294
50:50	35:65	31.8182	53.1818	81.8182	118.1818
50:50	40:60	37.5000	52.5000	87.5000	112.5000
50:50	45:55	43.5484	51.4516	93.5484	106.4516
50:50	50:50	50.0000	50.0000	100.0000	100.0000
50:50	55:45	56.8966	48.1034	106.8966	93.1034
50:50	60:40	64.2857	45.7143	114.2857	85.7143
50:50	65:35	72.2222	42.7778	122.2222	77.7778
50:50	70:30	80.7692	39.2308	130.7692	69.2308
50:50	75:25	90.0000	35.0000	140.0000	60.0000
50:50	80:20	100.0000	30.0000	150.0000	50.0000
50:50	85:15	110.8696	24.1304	160.8696	39.1304
50:50	90:10	122.7273	17.2727	172.7273	27.2727
50:50	95:5	135.7143	9.2857	185.7143	14.2857
50:50	100:0	150.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
55:45	0:100	0.0000	55.0000	45.0000	155.0000
55:45	5:95	3.5861	56.4139	48.5861	151.4139
55:45	10:90	7.3810	57.6190	52.3810	147.6190
55:45	15:85	11.4033	58.5967	56.4033	143.5967
55:45	20:80	15.6742	59.3258	60.6742	139.3258
55:45	25:75	20.2174	59.7826	65.2174	134.7826
55:45	30:70	25.0599	59.9401	70.0599	129.9401
55:45	35:65	30.2322	59.7678	75.2322	124.7678
55:45	40:60	35.7692	59.2308	80.7692	119.2308
55:45	45:55	41.7110	58.2890	86.7110	113.2890
55:45	50:50	48.1034	56.8966	93.1034	106.8966
55:45	55:45	55.0000	55.0000	100.0000	100.0000
55:45	60:40	62.4627	52.5373	107.4627	92.5373
55:45	65:35	70.5642	49.4358	115.5642	84.4358
55:45	70:30	79.3902	45.6098	124.3902	75.6098
55:45	75:25	89.0426	40.9574	134.0426	65.9574
55:45	80:20	99.6429	35.3571	144.6429	55.3571
55:45	85:15	111.3380	28.6620	156.3380	43.6620
55:45	90:10	124.3069	20.6931	169.3069	30.6931
55:45	95:5	138.7696	11.2304	183.7696	16.2304
55:45	100:0	155.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
60:40	0:100	0.0000	60.0000	40.0000	160.0000
60:40	5:95	3.2990	61.7010	43.2990	156.7010
60:40	10:90	6.8085	63.1915	46.8085	153.1915
60:40	15:85	10.5495	64.4505	50.5495	149.4505
60:40	20:80	14.5455	65.4545	54.5455	145.4545
60:40	25:75	18.8235	66.1765	58.8235	141.1765
60:40	30:70	23.4146	66.5854	63.4146	136.5854
60:40	35:65	28.3544	66.6456	68.3544	131.6456
60:40	40:60	33.6842	66.3158	73.6842	126.3158
60:40	45:55	39.4521	65.5479	79.4521	120.5479
60:40	50:50	45.7143	64.2857	85.7143	114.2857
60:40	55:45	52.5373	62.4627	92.5373	107.4627
60:40	60:40	60.0000	60.0000	100.0000	100.0000
60:40	65:35	68.1967	56.8033	108.1967	91.8033
60:40	70:30	77.2414	52.7586	117.2414	82.7586
60:40	75:25	87.2727	47.7273	127.2727	72.7273
60:40	80:20	98.4615	41.5385	138.4615	61.5385
60:40	85:15	111.0204	33.9796	151.0204	48.9796
60:40	90:10	125.2174	24.7826	165.2174	34.7826
60:40	95:5	141.3953	13.6047	181.3953	18.6047
60:40	100:0	160.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
65:35	0:100	0.0000	65.0000	35.0000	165.0000
65:35	5:95	2.9845	67.0155	37.9845	162.0155
65:35	10:90	6.1765	68.8235	41.1765	158.8235
65:35	15:85	9.5983	70.4017	44.5983	155.4017
65:35	20:80	13.2759	71.7241	48.2759	151.7241
65:35	25:75	17.2388	72.7612	52.2388	147.7612
65:35	30:70	21.5217	73.4783	56.5217	143.4783
65:35	35:65	46.1651	73.8350	61.1651	138.8349
65:35	40:60	31.2162	73.7838	66.2162	133.7838
65:35	45:55	36.7315	73.2686	71.7315	128.2685
65:35	50:50	42.7778	72.2222	77.7778	122.2222
65:35	55:45	49.4358	70.5642	84.4358	115.5642
65:35	60:40	56.8033	68.1967	91.8033	108.1967
65:35	65:35	65.0000	65.0000	100.0000	100.0000
65:35	70:30	74.1743	60.8257	109.1743	90.8257
65:35	75:25	84.5122	55.4878	119.5122	80.4878
65:35	80:20	96.2500	48.7500	131.2500	68.7500
65:35	85:15	109.6927	40.3073	144.6927	55.3073
65:35	90:10	125.2410	29.7590	160.2410	39.7590
65:35	95:5	143.4314	16.5686	178.4314	21.5686
65:35	100:0	165.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
70:30	0:100	0.0000	70.0000	30.0000	170.0000
70:30	5:95	2.6425	72.3575	32.6425	167.3575
70:30	10:90	5.4839	74.5161	35.4839	164.5161
70:30	15:85	8.5475	76.4525	38.5475	161.4525
70:30	20:80	11.8605	78.1395	41.8605	158.1395
70:30	25:75	15.4546	79.5455	45.4546	154.5455
70:30	30:70	19.3671	80.6329	49.3671	150.6329
70:30	35:65	23.6424	81.3576	53.6424	146.3576
70:30	40:60	28.3333	81.6667	58.3333	141.6667
70:30	45:55	33.5037	81.4964	63.5037	136.4963
70:30	50:50	39.2308	80.7692	69.2308	130.7692
70:30	55:45	45.6098	79.3902	75.6098	124.3902
70:30	60:40	52.7586	77.2414	82.7586	117.2414
70:30	65:35	60.8257	74.1743	90.8257	109.1743
70:30	70:30	70.0000	70.0000	100.0000	100.0000
70:30	75:25	80.5263	64.4737	110.5263	89.4737
70:30	80:20	92.7273	57.2727	122.7273	77.2727
70:30	85:15	107.0370	47.9630	137.0370	62.9630
70:30	90:10	124.0541	35.9459	154.0541	45.9459
70:30	95:5	144.6269	20.3731	174.6269	25.3731
70:30	100:0	170.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
75:25	0:100	0.0000	75.0000	25.0000	175.0000
75:25	5:95	2.2727	77.7273	27.2727	172.7273
75:25	10:90	4.7297	80.2703	29.7297	170.2703
75:25	15:85	7.3944	82.6056	32.3944	167.6056
75:25	20:80	10.2941	84.7059	35.2941	164.7059
75:25	25:75	13.4615	86.5385	38.4615	161.5385
75:25	30:70	16.9355	88.0645	41.9355	158.0645
75:25	35:65	20.7627	89.2373	45.7627	154.2373
75:25	40:60	25.0000	90.0000	50.0000	150.0000
75:25	45:55	29.7170	90.2830	54.7170	145.2830
75:25	50:50	35.0000	90.0000	60.0000	140.0000
75:25	55:45	40.9575	89.0426	65.9575	134.0425
75:25	60:40	47.7273	87.2727	72.7273	127.2727
75:25	65:35	55.4878	84.5122	80.4878	119.5122
75:25	70:30	64.4737	80.5263	89.4737	110.5263
75:25	75:25	75.0000	75.0000	100.0000	100.0000
75:25	80:20	87.5000	67.5000	112.5000	87.5000
75:25	85:15	102.5862	57.4138	127.5862	72.4138
75:25	90:10	121.1538	43.8462	146.1538	53.8462
75:25	95:5	144.5652	25.4348	169.5652	30.4348
75:25	100:0	175.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
80:20	0:100	0.0000	80.0000	20.0000	180.0000
80:20	5:95	1.8750	83.1250	21.8750	178.1250
80:20	10:90	3.9130	86.0870	23.9130	176.0870
80:20	15:85	6.1364	88.8636	26.1364	173.8636
80:20	20:80	8.5714	91.4286	28.5714	171.4286
80:20	25:75	11.2500	93.7500	31.2500	168.7500
80:20	30:70	14.2105	95.7895	34.2105	165.7895
80:20	35:65	17.5000	97.5000	37.5000	162.5000
80:20	40:60	21.1765	98.8235	41.1765	158.8235
80:20	45:55	25.3125	99.6875	45.3125	154.6875
80:20	50:50	30.0000	100.0000	50.0000	150.0000
80:20	55:45	35.3571	99.6429	55.3571	144.6429
80:20	60:40	41.5385	98.4615	61.5385	138.4615
80:20	65:35	48.7500	96.2500	68.7500	131.2500
80:20	70:30	57.2727	92.7273	77.2727	122.7273
80:20	75:25	67.5000	87.5000	87.5000	112.5000
80:20	80:20	80.0000	80.0000	100.0000	100.0000
80:20	85:15	95.6250	69.3750	115.6250	84.3750
80:20	90:10	115.7143	54.2857	135.7143	64.2857
80:20	95:5	142.5000	32.5000	162.5000	37.5000
80:20	100:0	180.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
85:15	0:100	0.0000	85.0000	15.0000	185.0000
85:15	5:95	1.4491	88.5509	16.4491	183.5509
85:15	10:90	3.0328	91.9672	18.0328	181.9672
85:15	15:85	4.7708	95.2292	19.7708	180.2292
85:15	20:80	6.6868	98.3132	21.6868	178.3132
85:15	25:75	8.8095	101.1905	23.8095	176.1905
85:15	30:70	11.1745	103.8255	26.1745	173.8255
85:15	35:65	13.8256	106.1744	28.8256	171.1744
85:15	40:60	16.8182	108.1818	31.8182	168.1818
85:15	45:55	20.2227	109.7773	35.2227	164.7773
85:15	50:50	24.1304	110.8696	39.1304	160.8696
85:15	55:45	28.6620	111.3380	43.6620	156.3380
85:15	60:40	33.9796	111.0204	48.9796	151.0204
85:15	65:35	40.3073	109.6927	55.3073	144.6927
85:15	70:30	47.9630	107.0370	62.9630	137.0370
85:15	75:25	57.4138	102.5862	72.4138	127.5862
85:15	80:20	69.3750	95.6250	84.3750	115.6250
85:15	85:15	85.0000	85.0000	100.0000	100.0000
85:15	90:10	106.2766	68.7234	121.2766	78.7234
85:15	95:5	136.9480	43.0520	151.9480	48.0520
85:15	100:0	185.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
90:10	0:100	0.0000	90.0000	10.0000	190.0000
90:10	5:95	0.9948	94.0052	10.9948	189.0052
90:10	10:90	2.0879	97.9121	12.0879	187.9121
90:10	15:85	3.2948	101.7052	13.2948	186.7052
90:10	20:80	4.6342	105.3658	14.6342	185.3658
90:10	25:75	6.1290	108.8710	16.1290	183.8710
90:10	30:70	7.8082	112.1918	17.8082	182.1918
90:10	35:65	9.7080	115.2920	19.7080	180.2920
90:10	40:60	11.8750	118.1250	21.8750	178.1250
90:10	45:55	14.3698	120.6302	24.3698	175.6302
90:10	50:50	17.2727	122.7273	27.2727	172.7273
90:10	55:45	20.6931	124.3069	30.6931	169.3069
90:10	60:40	24.7826	125.2174	34.7826	165.2174
90:10	65:35	29.7590	125.2410	39.7590	160.2410
90:10	70:30	35.9459	124.0541	45.9459	154.0541
90:10	75:25	43.8462	121.1538	53.8462	146.1538
90:10	80:20	54.2857	115.7143	64.2857	135.7143
90:10	85:15	68.7234	106.2766	78.7234	121.2766
90:10	90:10	90.0000	90.0000	100.0000	100.0000
90:10	95:5	124.4828	60.5172	134.4828	65.5172
90:10	100:0	190.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
95:5	0:100	0.0000	95.0000	5.0000	195.0000
95:5	5:95	0.5118	99.4882	5.5118	194.4882
95:5	10:90	1.0773	103.9226	6.0774	193.9226
95:5	15:85	1.7055	108.2945	6.7055	193.2945
95:5	20:80	2.4074	112.5926	7.4074	192.5926
95:5	25:75	3.1967	116.8033	8.1967	191.8033
95:5	30:70	4.0909	120.9091	9.0909	190.9091
95:5	35:65	5.1124	124.8876	10.1124	189.8876
95:5	40:60	6.2903	128.7097	11.2903	188.7097
95:5	45:55	7.6638	132.3362	12.6638	187.3362
95:5	50:50	9.2857	135.7143	14.2857	185.7143
95:5	55:45	11.2304	138.7696	16.2304	183.7696
95:5	60:40	13.6047	141.3953	18.6047	181.3953
95:5	65:35	16.5686	143.4314	21.5686	178.4314
95:5	70:30	20.3731	144.6269	25.3731	174.6269
95:5	75.25	25.4348	144.5652	30.4348	169.5652
95:5	80:20	32.5000	142.5000	37.5000	162.5000
95:5	85:15	43.0520	136.9480	48.0520	151.9480
95:5	90:10	60.5172	124.4828	65.5172	134.4828
95:5	95:5	95.0000	95.0000	100.0000	100.0000
95:5	100:0	195.0000	0.0000	200.0000	0.0000

TABLE 3

POINTS ORIGINATING FROM GROUP, ARRIVING AT MEMBER'S STATION, AND TERMINATING AT OPTION DURING ALL CYCLES (WITHOUT OR WITH DIRECT POINTS FROM MEMBER TO OPTION)

a:c	b:d	GAO	GBO	c+GAO	d+GBO
100:0	0:100	0.0000	100.0000	0.0000	200.0000
100:0	5:95	0.0000	105.0000	0.0000	200.0000
100:0	10:90	0.0000	110.0000	0.0000	200.0000
100:0	15:85	0.0000	115.0000	0.0000	200.0000
100:0	20:80	0.0000	120.0000	0.0000	200.0000
100:0	25:75	0.0000	125.0000	0.0000	200.0000
100:0	30:70	0.0000	130.0000	0.0000	200.0000
100:0	35:65	0.0000	135.0000	0.0000	200.0000
100:0	40:60	0.0000	140.0000	0.0000	200.0000
100:0	45:55	0.0000	145.0000	0.0000	200.0000
100:0	50:50	0.0000	150.0000	0.0000	200.0000
100:0	55:45	0.0000	155.0000	0.0000	200.0000
100:0	60:40	0.0000	160.0000	0.0000	200.0000
100:0	65:35	0.0000	165.0000	0.0000	200.0000
100:0	70:30	0.0000	170.0000	0.0000	200.0000
100:0	75:25	0.0000	175.0000	0.0000	200.0000
100:0	80:20	0.0000	180.0000	0.0000	200.0000
100:0	85:15	0.0000	185.0000	0.0000	200.0000
100:0	90:10	0.0000	190.0000	0.0000	200.0000
100:0	95:5	0.0000	195.0000	0.0000	200.0000
100:0	100:0				

PILOT STUDY-METHOD

Table 2, as noted, was employed in an exploratory attempt to combine the decision-making innovations of dyadic-SPAN with the mixed-motive EPD game. Teams consisted of dyads, and pairs of dyads played one another. These pairs of dyads were randomly assigned to either the dyadic-SPAN condition or the traditional method condition, the latter group omitting the division of points between themselves and their teammates.

Materials

The EPD game required each S to have a game board consisting of twenty squares and twenty game pieces, the latter being white on one side, blue on the other. In addition, each S was supplied with an answer form on which to note his game decisions and point allocations (if he was playing under the dyadic-SPAN condition), and a payoff matrix allowing him to determine the result of different decisions he might make in the EPD game. Play money was used for the payoff.

Subjects

Twenty four Ss, both male and female, were selected from undergraduate courses in psychology, sociology and home economics at The University of Arizona. Subjects volunteered in pairs for this experiment and it was required that the members of the pair know each other fairly well and have a knowledge of the abilities

of one another. By and large they were dormitory roommates or were seated together in the class from which they were taken. Participation was completely voluntary.

Procedure

Subjects were seated at tables in pairs in such a manner that they could not see each other's game board. Between the members of a team, a barrier was placed in order that players could not see what their teammate was doing. Both teams were then read the following instructions:

> The purpose of this experiment is to compare different methods of making a decision. You are about to play a game, the outcome of which may have important implications for the field of psychology. Please devote your full attention to the instructions so that you will be able to play the game as well as you are able. Before each of you is a game board (demonstrate), and 20 game pieces (demonstrate). Notice that these game pieces are white on one side, and blue on the other. The four of you are divided into two teams, Team 1 (and name the members) and Team 2 (and name the members). Teams 1 and 2 are separated so there will be no communication between you. Also, the members of Team 1 are not to talk between themselves while the experiment is under way. The same goes for Team 2. So, no one is allowed to talk to anyone else after we begin the game. In addition, please do not look on anyone else's board after we begin the game.
>
> The rules of the game are as follows: Each of you is to turn over as many game pieces as you wish from the white side to the blue side. After each person has done this, I will figure out a team answer for each team. For example, (name) and (name) will decide individually how many chips to turn to the blue side and then I will calculate a team decision based on both of your individual decisions. For Team 2, (name) and (name) will decide individually how many chips to turn to the blue side and then I will calculate a team decision based on both of your individual decisions. The payoff matrix that you each have (demonstrate) will help you decide how many blue chips you wish to turn over. On the left side of the matrix, notice that it is labelled "Your Team" and has numbers from 0 to 20. These numbers

refer to the number of blue chips you decide to have showing. On top is the "Other Team" and the numbers 0 to 20, referring to the number of blue chips they decide to have showing. The numbers inside the squares refer to the number of play dollars won or lost for each pair of choices your team and your opponents make. The number on top (1st number) in the square refers to how much your team wins or if it has a minus sign, how much it loses. The number on the bottom of the square (2nd number) refers to how many play dollars your opponents win or lose. Let us take an example. Let's say that your team decides to turn over 5 blue pieces and your opponents decide to turn over 5 also. As you look at the matrix, you can see that you will win 5 play dollars and your opponents will win 5 play dollars. If your team chooses 13 blue and your opponents chose 13 blue, your team and your opponents team win 13 play dollars. So, you can see that whenever your team and your opponents team turn over the chips so the same number of blue are showing, you both win a dollar for every blue chip. Now let us look at another example. Let's say that you turn over 6 blue chips and your opponents turn over 9. In this case you can see that your team wins 12 dollars and your opponents only 3 dollars. Or, if your team decides on 19 blue chips and your opponents decide on 2 blue chips, you can see that your team loses 15 dollars while your opponents win 36 dollars. So, the idea of the game is to try to guess what your opponents will do and make your choices accordingly. If both your team and your opponents' turn up many blue chips, you can both win some money. But if one turns over many blue chips and the other few, the team with many blue chips can win only a little money, or even lose some while the team with few blue chips stands to win a good deal of money. (So far) you have seen that each of you individually choses a certain number of chips, or no chips if you prefer, to be turned over to the blue side. I will then calculate a team choice for Team 1 and a team choice for Team 2 and you will win or lose a certain number of play dollars as shown on the Payoff Matrix. Do you understand the game?

1- non-SPAN: We will begin then. Make your first play by turning over some or no chips to the blue side. Remember that according to the Payoff Matrix, if both teams decide to turn up many blue chips, both teams can win some money. But, if one team turns up fewer blue chips than the other, that team with the fewer blue chips wins more.

2- SPAN: Now there is one more important part to this game. In front of you you will see a sheet of paper marked "Answer Form". There are spaces marked "number of blue

chips showing", "confidence in your own choice" and "confidence in your partner's choice". In the first space you simply write down the number of blue chips you chose to turn up on that play. In the next two spaces, I want you to divide 100 points between your confidence in your own choice and your confidence in your partner's choice. Of course, since you can't talk to your partner to learn his choice, you will have to rely on your judgment of your partner's abilities in situations like this. If you give more than 50 points to your own choice and less than 50 to your partner, that will mean that your choice will carry more weight than your partner's when I figure out your team choice. If you give your partner more than 50 points and your own choice less than 50 points, your partner's choice will carry more weight. For example, twenty points for your choice and 80 for your partner's means that you are quite certain that your partner's choice will be better than yours. Ninety-five points for your own choice and 5 for your partner's choice means that you have very great confidence in your own choice and very little confidence in your partner's choice. Neither member on a team will know how many points the other gives him, this part will be kept secret. I will announce, though, how many blue chips each person turned up, how many his partner turned up and what the combined team decision was after each play. I will also announce how much each team won or lost. This will give you some information on how to make your choice on the next play.

I'll review all this briefly. Each player decides how many, if any, blue chips to turn up. He then writes this number on the first blank of the Answer Sheet. On the second two blanks, he decides how much confidence he has in his own and his teammate's choice. These second two numbers have to add up to 100, and please make them in multiples of 5. Any questions? Remember that, according to the Payoff Matrix, if both teams decide to turn up many blue chips, both can win some money. But if one team turns up fewer blue chips than the other, the team with the fewer blue chips wins more.

At the termination of the first play of EPD, E noted the number of blue chips the players had chosen to turn up and the division made between the original 100 points each player had (in the SPAN condition). The table of dyadic-SPAN calculations was then consulted in order to determine each player's average and

the team average for each team. From the Payoff Matrix the payoff due each team was calculated. Players were then told how each of their teams had fared and were given a certain number of play dollars as indicated by the Payoff Matrix. In addition they were told what each of them would have won had they been playing independently instead of on teams. This type of feedback was necessary for the evaluation of one's own play and one's teammate's play and served as a basis for the allocation of confidence points on the succeeding play. In the traditional method condition, the team choice was the mean of the two player's individual choices.

DISCUSSION

With 24 Ss used, only three dyadic-SPAN and three non-dyadic-SPAN groups were obtained. This was sufficient for a methodological pilot study but insufficient for clear-cut results. Therefore, the discussion section will deal only with the methodological nature of the study and the problems encountered.

It was found that ten trials of the dyadic-SPAN condition could be concluded in approximately 45 minutes, depending of course, on the amount of time spent in answering questions concerning instructions. Calculations are not difficult but involve about a minute's work for each play of the game. Noting the choices and allocations made by the players, determining the payoffs, reporting the results and distributing the play money brings the entire period of a single play to three minutes. The use of a desk calculator would result in some saving of time, but not a considerable amount. An assistant, on the other hand, would nearly halve the amount of time for each play. Twenty trials might easily be completed in an hour.

The exploratory portion of this study being completed, certain improvements and variations can be suggested. The instructions, in an attempt to be explicit, may have stressed the competitive aspects of the game to the detriment of cooperative play. It is well known that members of our society tend to be

competitive in any game situation, and, as a corrective for this, the benefits of cooperation in EPD should be emphasized, possibly by suggesting that the payoff to the whole system (both sides) be maximized. This could result in a wider range of decisions in actual game play and consequently a broader field for experimental conditions to demonstrate themselves differentially. It was found in the present study that an extremely small percentage of Ss made consistent plays which could be interpreted as cooperative (turning up ten or more blue chips).

"Factories" and "missiles" might have been substituted for "blue" and "white" chips in the instructions to give the game a measure of concreteness and to add the flavor of international decision-making. Pilisuk et al. (1965) incorporated the "factory" and "missile" terminology in their EPD game, but results differed insignificantly from the "blue" and "white" game. Using a more select group of Ss, perhaps a peace group or hawk-like group, might emphasize the differences between the abstract and concrete terminology.

CONCLUSION

The tables presented in this thesis are by no means limited to EPD or similar games since any dyadic decision-making group can employ this method. Clinicians, for example, can use dyadic-SPAN in order to pool judgments on diagnoses and treatments. Dyadic SPAN has its ultimate use when time and communication are limited and when a decision-maker has not had the time to discuss adequately an issue or problem with his partner or confederate. Judgments can be sensitively pooled without an actual interaction of the two decision makers. Applications to game theory, on the other hand, are not to be minimized. Much work has been done with PD and EPD in the context of peace and cooperation research. If dyadic-SPAN, by increasing the influence of the more capable member of the group, is able to foster more cooperation and more successful game play, then its applications to international relations might be manifold.

APPENDIX A

SPAN CALCULATIONS FOR A GROUP OF TWO MEMBERS
(Derived by MacKinnon, 1967)

The following notation will be used:

a the number of points Member A of the dyad allocated to Member B

b the number of points Member B of the dyad allocated to Member A

c the number of points A allocated to Options

d the number of points B allocated to Options

t the total number of original points of each member

Receiver	Number of Points Received at End of Cycle						
	1	2	3	4	5	6	...
A	b	$\frac{ab}{t}$	$\frac{ab^2}{t^2}$	$\frac{a^2b^2}{t^3}$	$\frac{a^2b^3}{t^4}$	$\frac{a^3b^3}{t^5}$	...
B	a	$\frac{ab}{t}$	$\frac{a^2b}{t^2}$	$\frac{a^2b^2}{t^3}$	$\frac{a^3b^2}{t^4}$	$\frac{a^3b^3}{t^5}$	...

After the first term, any term in the A row is obtained by multiplying the term below and to the left of it by $\frac{b}{t}$, and any term in the B row is obtained by multiplying the term above and to the left of it by $\frac{a}{t}$. The two terms in each odd-numbered cycle are different only in that a is substituted for b and b for a, and the two terms in each even-numbered cycle are identical.

The sum of the odd-numbered terms in the A row may be written

$$b\left(1 + \frac{ab}{t^2} + \frac{a^2b^2}{t^4} + \ldots\right). \tag{1}$$

Letting $\frac{ab}{t^2} = x^2$ in the algebraic identity,

$$\frac{1}{1-x^2} = 1 + x^2 + x^4 + \ldots \tag{2}$$

we find that (1) equals

$$b\left(\frac{1}{1 - \frac{ab}{t^2}}\right) = \frac{b}{\frac{t^2 - ab}{t^2}} = \frac{bt^2}{t^2 - ab}$$

which is the formula used in obtaining column BA entries.

APPENDIX B

PROGRAM

```
   READ 1, T, TSQ
 1 FORMAT (2F10.0)
   C=100.
   A=0.
15 D=100.
   B=0.
 5 Q=TSQ*A/(TSQ-(A*B))
   R=A*B*T/(TSQ-(A*B))
   S=TSQ*B/(TSQ-(A*B))
   U=A*B*T/(TSQ-(A*B))
   V=R+S
   W=Q+U
   X=D/100.*Q
   Y=C/100.*R
   Z=C/100.*S
   E=D/100.*U
   F=C/100.*V
   G=D/100.*W
   CP=C+F
   DP=D+G
   PRINT2,A,C,B,D,Q,R,S,U,V
 2 FORMAT(4F7.0,5F16.8)
   PRINT 3,W,X,Y,Z,E,F
 3 FORMAT (6F16.8)
   PRINT 4,G,CP,DP
 4 FORMAT (3F16.8)
   B=B+5.
   D=D-5.
   IF(B-100.) 5,5,10
10 A=A+5.
   C=C-5.
   IF(A-100.) 15,15,20
20 STOP
   END
```

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