AFHRL-TR-69-7
VOLUME II

STUDY OF ADAPTIVE MATHEMATICAL MODELS FOR DERIVING AUTOMATED PILOT PERFORMANCE MEASUREMENT TECHNIQUES

VOLUME II. APPENDICES

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Falls Church, Virginia
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EDWARD M. CONNELLY and ALFRED R. SCHULER

Melpar
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FOREWORD

This study was initiated by the Air Force Human Resources Laboratory, Air Force Systems Command, Wright-Patterson AFB, Ohio. The research was conducted by Melpar, Falls Church, Virginia, under Contract F33615-68-C-1278. The work is in support of Air Force Project 6114, "Simulation Techniques for Aerospace Crew Training," Task 611412, "Instructional Simulation and Dynamic Performance Monitoring."

This is the second of two volumes documenting the research and contains supporting data in the form of appendices to the first volume. The first volume documents the study itself and is entitled "Study of Adaptive Mathematical Models for Deriving Automated Pilot Performance Measurement Techniques: Volume I. Model Development." (AFHRL-TR-69-7, Vol. I)

Mr. E. M. Connelly and Dr. A. R. Schuler were principal investigators for Melpar. Miss Patricia A. Knoop was the project engineer for the Air Force and participated in the program in an active and significant manner. This report documents research work performed from January 1968 to January 1969. This report was submitted by the authors 27 June 1969.

This technical report has been reviewed and is approved.

Gordon A. Eckstrand, Ph.D.
Chief, Training Research Division
Air Force Human Resources Laboratory

ABSTRACT

This volume documents supporting data for research on a new approach to deriving human performance measures and criteria for use in automatically evaluating trainee performance. Use of this volume is intended only as a supplement for the critical reader of the main study reported, entitled "Study of Adaptive Mathematical Models for Deriving Automated Pilot Performance Measurement Techniques: Volume I. Model Development." (AFHRL-TR-69-7, Vol. I)

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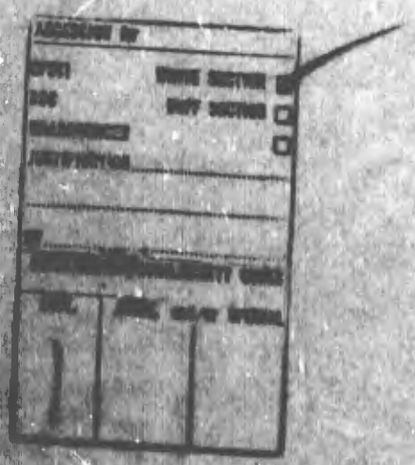

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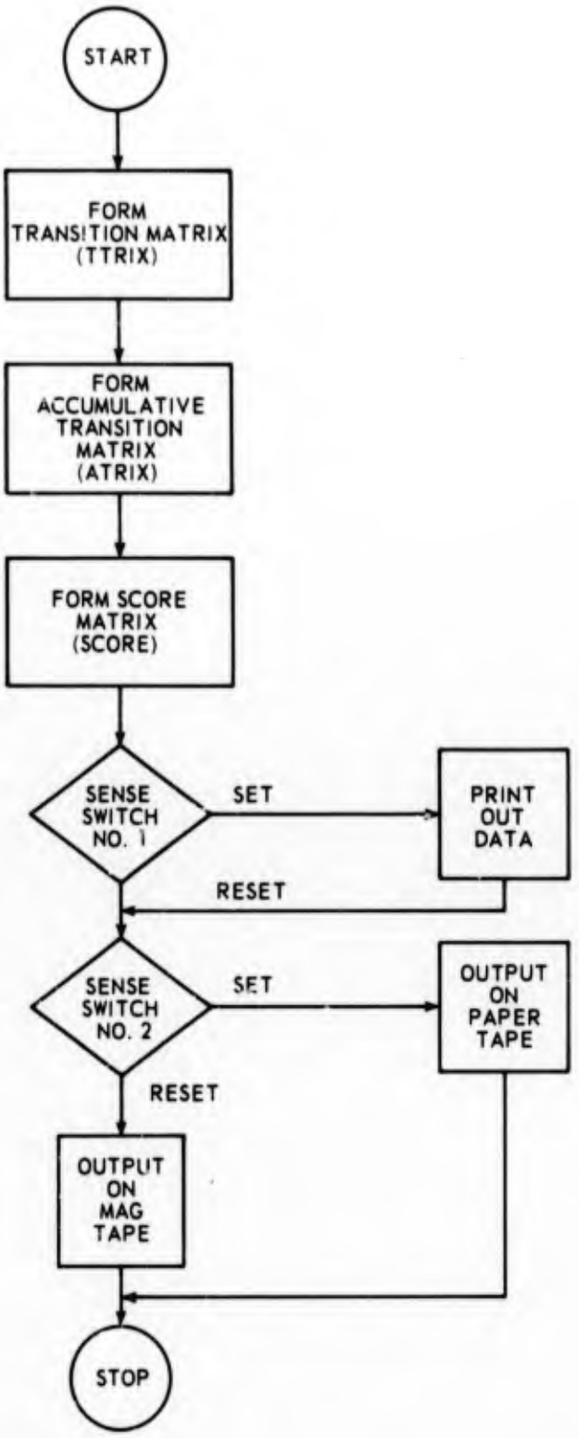
APPENDIX 1

PROGRAM FOR GENERATION OF TRANSITION AND SCORE MATRICES


START
FORM TRANSITION MATRIX (TTRIX)
FORM ACCUMULATIVE TRANSITION MATRIX (ATRIX)
FORM SCORE MATRIX (SCORE)
SENSE SWITCH NO. 1
SET
PRINT OUT DATA
RESET
SENSE SWITCH NO. 2
SET
OUTPUT ON PAPER TAPE
RESET
OUTPUT ON MAG TAPE
STOP

```
^JOB.
^ASSIGN S=MTO, SI=CR,LO=LP, BO=MT1.
^FORTRAN SI,LO,BO.
*     1  *
*     2  C      EMC AMM  68-4
*     3  C      STATE TRANSITION COMPUTATION
*     4  C      PART I  GENERATION OF TTRIX (TRANSITION MATRIX)
*     5  C                                 ATRIX (ACCUMULATIVE MATRIX)
*     6  C                                ISCORE (INCREMENTAL SCORES)
*     7          DIMENSION TTRIX(16,16),ATRIX(16,16),ISCORE(16,16)
*     8          READ 100, IR                                  ,R(16)
*     9  C      FORM TTRIX AND ATRIX
*    10          III = 5**9
*    11          SMALL = 1./(2**23-1)
*    12          DO 10, I=1,16
*    13          SUM = 0.
*    14          DO 20, J=1,16
*    15          IR = IR*III
*    16          R(J) = (IR*0.5) * SMALL + 0.5
*    17          SUM = SUM + R(J)
*    18          ATRIX(I,J) = SUM
*    19       20 CONTINUE
*    20          DO 30, J=1,16
*    21          TTRIX(I,J) = R(J)/SUM
*    22          ATRIX(I,J) = ATRIX(I,J)/SUM
*    23       30 CONTINUE
*    24       10 CONTINUE
*    25  C      GENERATE ISCORE
*    26          DO 40, I=1,16
*    27          DO 50, J=1,16
*    28          IR = IR*III
*    29          RE  =  ( (IR*0.5) * SMALL + 0.5 ) * 100.
*    30          ISCORE(I,J) = RE
*    31       50 CONTINUE
*    32       40 CONTINUE
*    33  C      PRINT ARRAYS
*    34          PRINT 105
*    35          DO 15, I=1,16
*    36          PRINT 101,(TTRIX(I,J),J=1,16)
*    37       15 CONTINUE
*    38          PRINT 106
*    39          DO 16 I=1,16
*    40          PRINT 101,(ATRIX(I,J),J=1,16)
*    41       16 CONTINUE
*    42          PRINT 107
*    43          DO 17,I=1,16
*    44          PRINT 103, (ISCORE(I,J), J=1,16)
*    45       17 CONTINUE
*    46      105 FORMAT (1H1, 10X,$ TRANSITION MATRIX $,//)
*    47      101 FORMAT (10X,16(F3.2,2X))
*    48      106 FORMAT (//,10X,$ ACCUMULATIVE MATRIX $,//)
*    49      107 FORMAT (1H1,10X,$INCREMENTAL SCORES$,//)
*    50      103 FORMAT (10X,16(I3,2X))
```

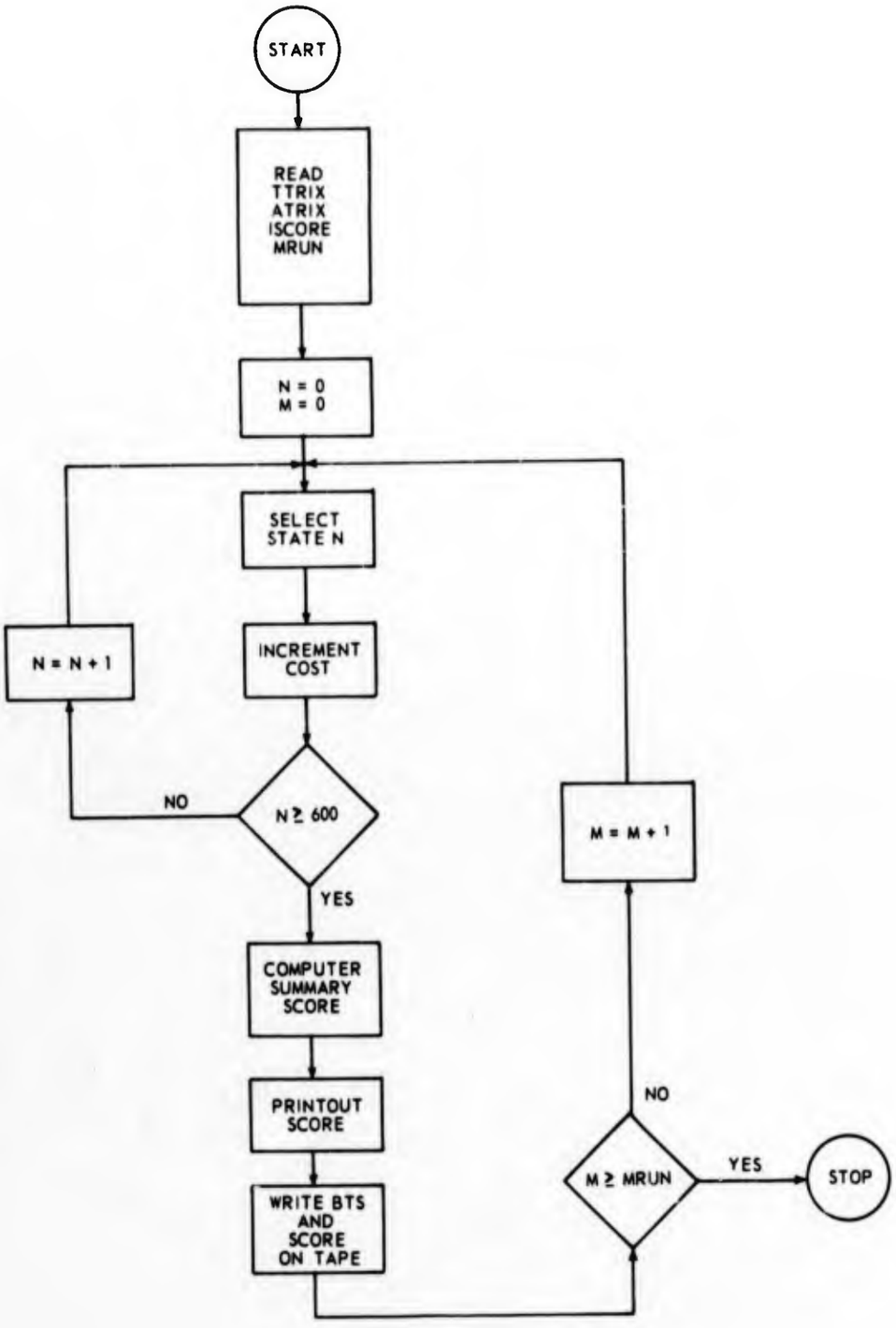
```
*    51      100 FORMAT [17]
*    52          PAUSE 66
*    53      102 FORMAT [16[I3,2X]]
*    54          PUNCH TAPE 104,[[TTRIX[I,J] , J=1,16] , I=1,16]
*    55      104 FORMAT [16[F3.2,2X]]
*    56          PAUSE 68
*    57          PUNCH TAPE 104, [[ATRIX[I,J], J=1,16],  I=1,16]
*    58          PAUSE 71
*    59          PUNCH TAPE 102, [[ISCORE[I,J], J=1,16], I=1,16]
*    60          STOP
*    61  *       END
```

PROGRAM ALLOCATION

```
 00004 TTRIX      01004 ATRIX      02004 ISCORE     02404 R
 02444 IR         02445 III        02446 I          02447 J
 02450 SMALL      02452 SUM        02454 RE
```

APPENDIX 2

PROGRAM FOR GENERATION OF BTS AND SUMMARY SCORES

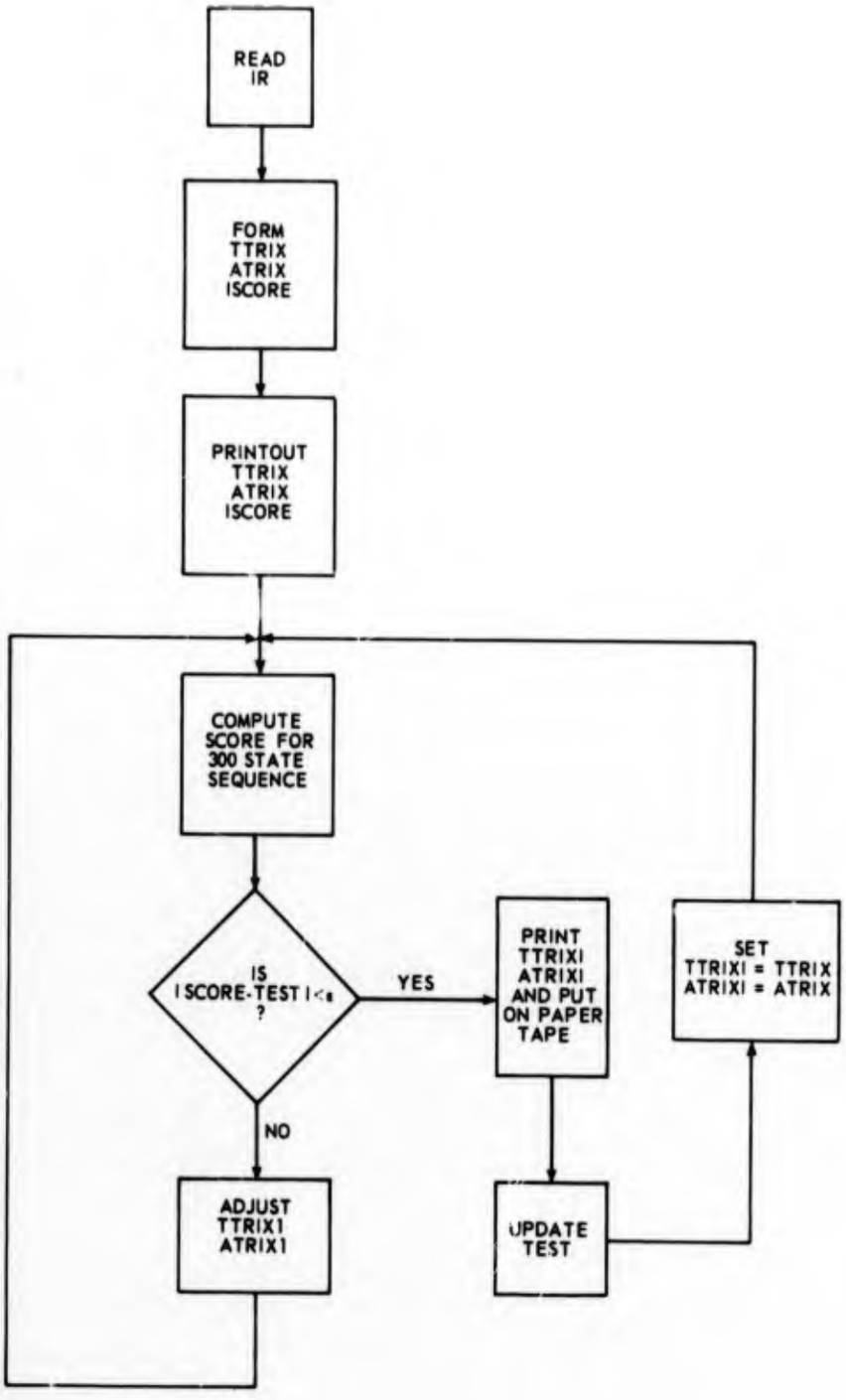

START
READ
TTRIX
ATRIX
ISCORE
MRUN
N = 0
M = 0
SELECT
STATE N
INCREMENT
COST
N = N + 1
NO
N ≥ 600
YES
COMPUTER
SUMMARY
SCORE
PRINTOUT
SCORE
WRITE BTS
AND
SCORE
ON TAPE
M = M + 1
NO
M ≥ MRUN
YES
STOP

```
△JOB.
△ASSIGN S=M10, SI=CR,LO=LP, 60=1T1.
△FORTRAN SI,LO,60.
=      1  *
=      2  C       EMC  APR  68-6
=      3  C       STATE TRANSITION COMPUTATION
=      4  C       PART II  DATA GENERATION
=      5          DIMENSION ATRIX[16,16], ISCORE[16,16], ISTATE[600]
=      6  C       READ INPUT DATA
=      7          PAUSE 1
=      8       1  ACCEPT TAPE 104, [[ATRIX[I,J] , J=1,16], I=1,16]
=      9     104  FORMAT [16[F3.2,2X]]
=     10          PAUSE 2
=     11          ACCEPT TAPE 102, [[ISCORE[I,J] , J=1,16], I=1,16]
=     12     102  FORMAT [16[I3,2X]]
=     13          READ 100, [MRUN,IR]
=     14     100  FORMAT [F6.0,I7]
=     15  C       INITIAL CONDITIONS
=     16          M = 0
=     17          III = 5**9
=     18          SMALL = 1./[2**23-1]
=     19      40  M=M+1
=     20  C       COMPUTE SEQUENCE OF STATES
=     21          SCORE = 0.
=     22          J=1
=     23          DO 10, K=1,600
=     24          I=J
=     25          IR = IR*III
=     26          R= [IR*0.5]*SMALL+0.5
=     27          DO 20 J=1,16
=     28          IF[ATRIX[I,J]-R] 20,21,21
=     29       21 ISTATE[K]=J
=     30          SCORE =SCORE+ISCORE[I,J]
=     31          GO TO 10
=     32       20 CONTINUE
=     33       10 CONTINUE
=     34          SCORE = SCORE/600.
=     35  C       PRINT OUT 100 STATES IF SENSE SWITCH 1 IS SET
=     36          IF [SENSE SWITCH 1] 30,31
=     37       30 PRINT 110
=     38      110 FORMAT[1H1,10X,'FIRST 100 STATES ']
=     39          DO 15, J=1,100,5
=     40          K=J+4
=     41          PRINT 111,[ISTATE[I],I=J,K]
=     42      111 FORMAT[10X,5[I10]]
=     43       15 CONTINUE
=     44          PRINT 112, SCORE
=     45      112 FORMAT [//,10X,F10.0]
=     46  C       WRITE STS ON MAG TAPE
=     47       31 WRITE TAPE 2,[ISTATE[K],K=1,600]
```

```
=     48          WRITE TAPE 2, [ISCORE]
=     49          IF [1-MRUN] 40,40,41
=     50      41 STOP

=     51  *       END

PROGRAM ALL CATIO.

   00002 ATRIX      01002 ISCORE     01402 ISTATE     02532 I
   02533 J          02534 MRUN       02535 IR         02536 M
   02537 III        02540 K          02541 SMALL      02543 SCORE
   02545 R
```

APPENDIX 3

PROGRAM FOR ADAPTIVE GENERATION OF TRANSITION AND SCORE MATRICES


READ IR
FORM TTRIX ATRIX ISCORE
PRINTOUT TTRIX ATRIX ISCORE
COMPUTE SCORE FOR 300 STATE SEQUENCE
IS |SCORE-TEST|<ε ?
YES
NO
PRINT TTRIXI ATRIXI AND PUT ON PAPER TAPE
SET TTRIXI = TTRIX ATRIXI = ATRIX
ADJUST TTRIX1 ATRIX1
UPDATE TEST

```
*REWIND MT1                                                    ....
*JOB.
*ASSIGN S=MTO, BI=MT1.
*FORTLOAD BI.
*JOB.
*ASSIGN S=MTO, SI=CR,LO=LP, BO=MT1.
*FORTRAN SI,LO,BO.
*     1  *
*     2  C      EMC AMM 68-7
*     3  C      PART IA ADAPTIVE PROGRAM FOR GENERATING STATE TRANSITIONS
*     4  C      STATE TRANSITION COMPUTATION
*     5         DIMENSION  TTRIX(16,16),ATRIX(16,16),ISCORE(16,16),R(16)
*     6        1           ITRIX1(16,16),ATRIX1(16,16),ISTATE(300)
*     7         READ 100, IR
*     8         PRINT 110, IR
*     9     110 FORMAT (1H1,10X,$ADAPTIVE PROGRAM FOR GENERATING STATE TRANSITIONS
*    10        1   $,///,20X,$ IR=$,I7)
*    11     100 FORMAT (I7)
*    12  C      FORM TTRIX AND ATRIX
*    13         III = 5**9
*    14         SMALL = 1./(2**23-1)
*    15         DO 10, I=1,16
*    16         SUM = 0.
*    17         DO 20, J=1,16
*    18         IR = IR*III
*    19         R(J) = (IR*0.5) * SMALL + 0.5
*    20         SUM = SUM + R(J)
*    21         ATRIX(I,J) = SUM
*    22      20 CONTINUE
*    23         DO 30, J=1,16
*    24         TTRIX(I,J) = R(J)/SUM
*    25         ATRIX(I,J) = ATRIX(I,J)/SUM
*    26      30 CONTINUE
*    27      10 CONTINUE
*    28  C      GENERATE ISCORE
*    29         DO 40, I=1,16
*    30         DO 50, J=1,16
*    31         IR = IR*III
*    32         RE   =  ( (IR*0.5) * SMALL + 0.5 ) * 100.
*    33         ISCORE(I,J) = RE
*    34      50 CONTINUE
*    35      40 CONTINUE
*    36  C      PRINT ARRAYS
*    37         PRINT 105
*    38         DO 15, I=1,16
*    39         PRINT 101,(TTRIX(I,J),J=1,16)
*    40      15 CONTINUE
*    41         PRINT 106
*    42         DO 16 I=1,16
*    43         PRINT 101,(ATRIX(I,J),J=1,16)
*    44      16 CONTINUE
*    45         PRINT 107
*    46         DO 17,I=1,16
```

```
*    47        PRINT 103, ((SCORE(I,J), J=1,16)
*    48     17 CONTINUE
*    49    105 FORMAT (1H1, 10X,$ TRANSITION MATRIX $,//)
*    50    101 FORMAT (10X,16(F4.2,1X))
*    51    106 FORMAT (//,10X,$ ACCUMULATIVE MATRIX $,//)
*    52    107 FORMAT (1H1,10X,$INCREMENTAL SCORES$,//)
*    53    103 FORMAT (10X,16(I3,2X))
*    54  C     COMPUTE SCORE FOR 300 STATE TRANSITIONS
*    55        TEST = 0.0
*    56      9 TEST = TEST + 10.0
*    57        PRINT 121, (TEST)
*    58        DO 80, I=1,16
*    59        DO 81, J=1,16
*    60        TTRIX1(I,J) = TTRIX(I,J)
*    61        ATRIX1(I,J)= ATRIX(I,J)
*    62     81 CONTINUE
*    63     80 CONTINUE
*    64     85 J=1
*    65        DO 60, K=1,300
*    66        I=J
*    67        IR = IR+111
*    68        RE = (IR*0.5)*SMALL + 0.5
*    69        DO 70, J=1,16
*    70        IF (ATRIX1(I,J) -RE) 70,62,62
*    71     62 ISTATE(K) = J
*    72        SCORE = SCORE + ISCORE(I,J)
*    73        GO TO 60
*    74     70 CONTINUE
*    75     60 CONTINUE
*    76        SCORE = SCORE/300.0
*    77  C     SCORE TEST
*    78        IF (TEST + 5.0 -SCORE) 75,76,76
*    79     76 IF (TEST - 5.0 -SCORE) 77,77,78
*    80     77 GO TO 8
*    81     75 L = -1
*    82        GO TO 79
*    83     78 L = 1
*    84        GO TO 79
*    85  C     ADJUST TTRIX AND ATRIX
*    86     79 PRINT 120,(SCORE)
*    87        J=1
*    88        DO 82,K=1,300
*    89        I=J
*    90        IR = IR+111
*    91        RE = (IR*0.5)*SMALL+0.5
*    92        DO 83, J=1,16
*    93        IF (ATRIX1(I,J) -RE) 83,84,84
*    94  C     ADJUSTMENT RULE    IF L=-1 SCORE IS TOO LARGE
*    95  C                       IF L=+1 SCORE IS TOO SMALL
*    96  C                       IF L=-1 AND (TEST - ISCORE)IS +, INCREASE PROB.
*    97  C                       IF L=-1 AND TEST - ISCORE IS -, DECREASE PROB.
*    98  C                       IF +1 AND TEST =
*    99  C                       IF L=+1 AND TEST - ISCORE IS +, DECREASE PROB.
*   100  C                       IF L=+1 AND TEST - ISCORE IS -, INCREASE PROB.
```

```
*  101      84 TTRIX1[I,J] = TTRIX1[I,J]*[1.-L*[TEST-ISCORE[I,J]]/100.0 ]
*  102         GO TO 82
*  103      83 CONTINUE
*  104      82 CONTINUE
*  105     120 FORMAT [10X,F 5.0]
*  106     121 FORMAT [1H1,10X,$ TEST SCORE =$,F5.0,//,10X,$SCORE CHANGES$]
*  107   C     UPDATE TTRIX1 AND ATRIX1
*  108         DO 90, I=1,16
*  109         SUM = 0.
*  110         DO 91, J=1,16
*  111         SUM = SUM + TTRIX1[I,J]
*  112         ATRIX1[I,J] = SUM
*  113      91 CONTINUE
*  114         DO 92, J=1,16
*  115         TTRIX1[I,J] = TTRIX1[I,J]/SUM
*  116         ATRIX1[I,J] = ATRIX1[I,J]/SUM
*  117      92 CONTINUE
*  118      90 CONTINUE
*  119         GO TO 85
*  120   C     PRINT RESULTS  TTRIX , ATRIX
*  121       8 PRINT 131, TEST
*  122         DO 93, I=1,16
*  123         PRINT 130, [TTRIX1[I,J], J=1,16]
*  124      93 CONTINUE
*  125         PRINT 132
*  126         DO 94, I=1,16
*  127         PRINT 130, [ATRIX1[I,J], J=1,16]
*  128      94 CONTINUE
*  129     130 FORMAT [10X,16[F5.2]]
*  130     131 FORMAT [1H1,5X,$TRANSITION MATRIX FOR SCORE =$,F5.2,//,10X,
*  131        1 $TTRIX$]
*  132     132 FORMAT [/,10X,$ATRIX$,/]
*  133         PAUSE 1
*  134         PUNCH TAPE 133,[[ATRIX1[I,J], J=1,16], I=1,16]
*  135     133 FORMAT [16F4.2]
*  136         GO TO 9
*  137         STOP
*  138   *     END
```

PROGRAM ALLOCATION

00006	TTRIX	01006	ATRIX	02006	ISCORE	02406	R
02446	TTRIX1	03446	ATRIX1	04446	ISTATE	05122	IR
05123	III	05124	I	05125	J	05126	K
05127	L	05130	SMALL	05132	SUM	05134	RE
05136	TEST	05140	SCORE				

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APPENDIX 4

TRANSITION AND ACCUMULATIVE MATRICES

TRANSITION MATRIX FOR SCORE =20.00

TTRIX

0.08	0.00	0.22	0.14	0.05	0.03	0.01	0.02	0.05	0.08	0.09	0.06	0.03	0.00	0.04	0.02
0.25	0.01	0.01	0.02	0.09	0.01	0.02	0.02	0.01	0.15	0.02	0.02	0.01	0.22	0.00	0.07
0.00	0.13	0.04	0.11	0.17	0.04	0.04	0.00	0.17	0.06	0.07	0.01	0.04	0.02	0.04	0.01
0.13	0.02	0.00	0.02	0.00	0.01	0.11	0.03	0.06	0.02	0.05	0.03	0.13	0.23	0.10	0.00
0.00	0.07	0.01	0.22	0.05	0.01	0.04	0.14	0.07	0.14	0.00	0.02	0.01	0.02	0.00	0.15
0.01	0.13	0.02	0.28	0.02	0.01	0.18	0.00	0.00	0.17	0.06	0.00	0.02	0.01	0.00	0.03
0.07	0.00	0.08	0.04	0.09	0.01	0.23	0.14	0.00	0.02	0.13	0.08	0.01	0.02	0.02	0.00
0.01	0.02	0.03	0.03	0.02	0.28	0.05	0.07	0.02	0.00	0.03	0.01	0.05	0.27	0.03	0.01
0.01	0.01	0.00	0.25	0.08	0.19	0.10	0.07	0.03	0.02	0.01	0.01	0.01	0.11	0.03	0.03
0.01	0.02	0.05	0.04	0.05	0.01	0.54	0.01	0.13	0.02	0.01	0.01	0.00	0.00	0.00	0.04
0.00	0.00	0.00	0.00	0.02	0.07	0.01	0.58	0.23	0.01	0.01	0.00	0.00	0.00	0.00	0.01
0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.01	0.01	0.00	0.01
0.03	0.00	0.01	0.09	0.01	0.43	0.04	0.04	0.02	0.01	0.03	0.01	0.01	0.15	0.02	0.04
0.05	0.01	0.01	0.56	0.03	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.25	0.00	0.00
0.03	0.17	0.29	0.00	0.06	0.00	0.00	0.19	0.00	0.02	0.02	0.00	0.00	0.03	0.14	0.01
0.00	0.00	0.01	0.04	0.20	0.08	0.15	0.07	0.06	0.00	0.22	0.01	0.02	0.02	0.01	0.05

ATRIX

0.08	0.08	0.31	0.45	0.51	0.54	0.56	0.59	0.64	0.72	0.82	0.88	0.92	0.93	0.97	1.00
0.25	0.27	0.28	0.30	0.40	0.42	0.44	0.47	0.48	0.64	0.66	0.68	0.70	0.92	0.92	1.00
0.00	0.14	0.18	0.29	0.47	0.51	0.55	0.56	0.73	0.79	0.87	0.88	0.92	0.94	0.98	1.00
0.13	0.15	0.15	0.18	0.18	0.19	0.31	0.34	0.40	0.43	0.49	0.52	0.66	0.89	0.99	1.00
0.00	0.08	0.10	0.32	0.37	0.38	0.42	0.57	0.64	0.78	0.78	0.81	0.82	0.84	0.85	1.00
0.01	0.15	0.17	0.46	0.48	0.50	0.68	0.68	0.69	0.86	0.92	0.92	0.95	0.96	0.97	1.00
0.07	0.08	0.17	0.21	0.31	0.33	0.56	0.69	0.70	0.72	0.85	0.93	0.94	0.97	0.99	1.00
0.01	0.04	0.07	0.11	0.14	0.41	0.47	0.55	0.57	0.58	0.62	0.63	0.68	0.95	0.99	1.00
0.01	0.02	0.02	0.28	0.37	0.55	0.66	0.74	0.77	0.80	0.81	0.82	0.83	0.94	0.97	1.00
0.01	0.03	0.09	0.14	0.20	0.21	0.74	0.76	0.89	0.91	0.93	0.94	0.94	0.95	0.96	1.00
0.00	0.00	0.01	0.01	0.03	0.10	0.12	0.70	0.93	0.95	0.96	0.97	0.98	0.98	0.99	1.00
0.04	0.06	0.06	0.07	0.07	0.08	0.08	0.08	0.09	0.10	0.96	0.96	0.98	0.99	0.99	1.00
0.03	0.03	0.05	0.15	0.16	0.58	0.63	0.67	0.70	0.72	0.75	0.76	0.78	0.92	0.95	1.00
0.05	0.07	0.08	0.64	0.68	0.69	0.70	0.70	0.74	0.74	0.74	0.75	0.75	1.00	1.00	1.00
0.03	0.20	0.49	0.49	0.55	0.56	0.56	0.75	0.75	0.78	0.81	0.81	0.81	0.85	0.98	1.00
0.00	0.00	0.02	0.06	0.26	0.35	0.50	0.57	0.64	0.65	0.87	0.88	0.91	0.93	0.94	1.00

TEST SCORE = 20.

SCORE CHANGES

48.
40.
31.

TRANSITION MATRIX FOR SCORE =30.00

TTRIX

0.07	0.00	0.17	0.12	0.09	0.03	0.02	0.01	0.07	0.08	0.11	0.08	0.04	0.01	0.03	0.02
0.24	0.00	0.03	0.03	0.06	0.08	0.00	0.02	0.02	0.05	0.01	0.02	0.06	0.22	0.01	0.06
0.01	0.10	0.03	0.07	0.15	0.04	0.07	0.01	0.07	0.07	0.12	0.01	0.03	0.05	0.09	0.00
0.08	0.01	0.01	0.02	0.02	0.00	0.09	0.05	0.14	0.04	0.04	0.04	0.12	0.08	0.15	0.03
0.02	0.03	0.01	0.06	0.15	0.03	0.06	0.09	0.07	0.13	0.04	0.02	0.04	0.14	0.00	0.05
0.00	0.11	0.02	0.39	0.03	0.03	0.11	0.00	0.01	0.05	0.06	0.01	0.02	0.00	0.00	0.10
0.05	0.00	0.07	0.02	0.11	0.01	0.21	0.16	0.04	0.01	0.10	0.12	0.01	0.00	0.00	0.03
0.01	0.06	0.02	0.04	0.01	0.51	0.03	0.04	0.01	0.00	0.04	0.00	0.02	0.12	0.02	0.01
0.00	0.01	0.02	0.20	0.18	0.21	0.12	0.03	0.03	0.03	0.01	0.00	0.00	0.07	0.01	0.02
0.01	0.02	0.03	0.04	0.07	0.01	0.18	0.00	0.48	0.04	0.01	0.01	0.00	0.00	0.04	0.00
0.01	0.01	0.02	0.00	0.02	0.17	0.02	0.20	0.29	0.01	0.05	0.00	0.11	0.00	0.01	0.04
0.19	0.09	0.01	0.00	0.04	0.01	0.01	0.00	0.03	0.02	0.41	0.01	0.04	0.03	0.03	0.02
0.01	0.01	0.04	0.06	0.01	0.37	0.07	0.01	0.00	0.01	0.08	0.07	0.02	0.14	0.01	0.02
0.05	0.01	0.04	0.36	0.06	0.03	0.04	0.04	0.05	0.00	0.00	0.02	0.00	0.23	0.00	0.00
0.04	0.22	0.16	0.00	0.08	0.00	0.01	0.23	0.01	0.02	0.03	0.00	0.00	0.03	0.09	0.03
0.00	0.00	0.01	0.07	0.10	0.05	0.21	0.05	0.05	0.02	0.30	0.00	0.05	0.00	0.02	0.02

ATRIX

0.07	0.07	0.25	0.37	0.47	0.50	0.52	0.54	0.61	0.70	0.81	0.89	0.93	0.95	0.98	1.00
0.24	0.25	0.28	0.31	0.38	0.46	0.47	0.49	0.52	0.60	0.62	0.64	0.71	0.92	0.94	1.00
0.01	0.12	0.16	0.23	0.38	0.43	0.51	0.52	0.60	0.68	0.80	0.81	0.84	0.90	0.99	1.00
0.08	0.11	0.12	0.15	0.17	0.18	0.28	0.34	0.47	0.52	0.56	0.61	0.73	0.81	0.96	1.00
0.02	0.06	0.07	0.14	0.30	0.33	0.39	0.46	0.55	0.68	0.73	0.75	0.80	0.94	0.94	1.00
0.00	0.12	0.14	0.53	0.56	0.60	0.71	0.71	0.73	0.79	0.85	0.87	0.89	0.89	0.90	1.00
0.05	0.06	0.14	0.17	0.28	0.29	0.50	0.66	0.71	0.72	0.82	0.94	0.95	0.96	0.97	1.00
0.01	0.08	0.11	0.15	0.17	0.67	0.71	0.75	0.77	0.77	0.81	0.82	0.85	0.97	0.99	1.00
0.00	0.02	0.04	0.24	0.42	0.63	0.75	0.79	0.82	0.85	0.87	0.88	0.88	0.95	0.97	1.00
0.01	0.04	0.08	0.12	0.20	0.21	0.39	0.40	0.88	0.92	0.93	0.94	0.95	0.95	1.00	1.00
0.01	0.03	0.05	0.05	0.07	0.25	0.27	0.47	0.75	0.76	0.82	0.83	0.94	0.94	0.96	1.00
0.19	0.29	0.30	0.31	0.35	0.37	0.38	0.38	0.42	0.44	0.85	0.87	0.91	0.94	0.98	1.00
0.01	0.03	0.08	0.15	0.16	0.53	0.60	0.62	0.62	0.64	0.72	0.80	0.82	0.96	0.98	1.00
0.05	0.07	0.12	0.48	0.54	0.57	0.62	0.66	0.72	0.72	0.73	0.75	0.76	0.99	0.99	1.00
0.04	0.27	0.43	0.43	0.52	0.52	0.53	0.76	0.77	0.80	0.83	0.84	0.84	0.87	0.97	1.00
0.00	0.00	0.02	0.09	0.20	0.25	0.46	0.52	0.57	0.59	0.89	0.90	0.96	0.96	0.98	1.00

TEST SCORE = 30.

SCORE CHANGES

50.

44.

TRANSITION MATRIX FOR SCORE =40.00

TTRIX

0.08	0.00	0.11	0.13	0.08	0.05	0.01	0.09	0.09	0.07	0.11	0.05	0.02	0.01	0.02	0.03
0.20	0.01	0.02	0.06	0.04	0.11	0.06	0.02	0.01	0.09	0.06	0.02	0.04	0.12	0.04	0.05
0.04	0.06	0.03	0.06	0.13	0.08	0.05	0.01	0.07	0.05	0.08	0.00	0.03	0.12	0.09	0.04
0.04	0.01	0.03	0.02	0.01	0.01	0.16	0.04	0.13	0.07	0.05	0.04	0.08	0.04	0.13	0.11
0.03	0.01	0.00	0.02	0.07	0.15	0.12	0.14	0.06	0.12	0.06	0.04	0.03	0.07	0.02	0.02
0.07	0.05	0.01	0.16	0.05	0.02	0.15	0.03	0.09	0.05	0.03	0.03	0.12	0.00	0.00	0.08
0.04	0.00	0.05	0.02	0.12	0.00	0.17	0.20	0.07	0.00	0.11	0.07	0.01	0.02	0.05	0.00
0.03	0.15	0.04	0.12	0.03	0.18	0.04	0.06	0.02	0.00	0.05	0.00	0.03	0.14	0.05	0.01
0.00	0.01	0.04	0.17	0.15	0.12	0.17	0.06	0.02	0.03	0.09	0.00	0.00	0.04	0.03	0.02
0.01	0.03	0.09	0.04	0.11	0.05	0.24	0.02	0.13	0.04	0.01	0.01	0.08	0.00	0.02	0.06
0.09	0.07	0.01	0.00	0.02	0.17	0.01	0.21	0.17	0.02	0.05	0.00	0.05	0.00	0.05	0.03
0.34	0.07	0.04	0.00	0.04	0.01	0.01	0.00	0.03	0.02	0.20	0.05	0.03	0.04	0.03	0.04
0.01	0.01	0.03	0.05	0.02	0.23	0.06	0.11	0.04	0.05	0.07	0.03	0.06	0.12	0.01	0.06
0.04	0.01	0.04	0.23	0.05	0.08	0.08	0.02	0.04	0.00	0.01	0.09	0.07	0.18	0.00	0.01
0.04	0.16	0.22	0.00	0.09	0.00	0.00	0.07	0.02	0.08	0.04	0.00	0.00	0.05	0.15	0.04
0.00	0.01	0.01	0.08	0.06	0.07	0.15	0.07	0.05	0.01	0.24	0.01	0.09	0.01	0.02	0.07

ATRIX

0.08	0.08	0.19	0.32	0.40	0.46	0.47	0.57	0.66	0.73	0.84	0.89	0.92	0.94	0.96	1.00
0.20	0.21	0.24	0.30	0.35	0.46	0.53	0.55	0.56	0.65	0.72	0.74	0.78	0.90	0.95	1.00
0.04	0.10	0.13	0.20	0.34	0.42	0.47	0.49	0.56	0.61	0.70	0.71	0.74	0.86	0.95	1.00
0.04	0.05	0.09	0.12	0.13	0.14	0.30	0.35	0.47	0.54	0.60	0.64	0.72	0.76	0.89	1.00
0.03	0.04	0.05	0.07	0.15	0.30	0.42	0.56	0.62	0.74	0.80	0.85	0.88	0.96	0.98	1.00
0.07	0.12	0.14	0.30	0.35	0.38	0.53	0.57	0.66	0.72	0.75	0.79	0.91	0.91	0.92	1.00
0.04	0.04	0.11	0.13	0.25	0.26	0.43	0.63	0.71	0.71	0.83	0.90	0.92	0.94	1.00	1.00
0.03	0.18	0.22	0.34	0.38	0.56	0.60	0.66	0.68	0.68	0.74	0.75	0.79	0.93	0.99	1.00
0.00	0.02	0.06	0.23	0.38	0.50	0.67	0.74	0.76	0.80	0.89	0.90	0.91	0.95	0.98	1.00
0.01	0.05	0.14	0.19	0.30	0.35	0.59	0.61	0.74	0.78	0.80	0.82	0.90	0.91	0.94	1.00
0.09	0.17	0.18	0.18	0.21	0.38	0.39	0.60	0.77	0.80	0.85	0.85	0.91	0.91	0.97	1.00
0.34	0.42	0.46	0.47	0.51	0.53	0.54	0.54	0.57	0.59	0.80	0.85	0.88	0.92	0.96	1.00
0.01	0.02	0.05	0.11	0.14	0.36	0.42	0.53	0.57	0.63	0.71	0.75	0.81	0.93	0.94	1.00
0.04	0.05	0.11	0.33	0.38	0.47	0.56	0.58	0.62	0.63	0.64	0.73	0.80	0.98	0.99	1.00
0.04	0.20	0.41	0.41	0.51	0.51	0.52	0.59	0.62	0.70	0.75	0.75	0.75	0.81	0.96	1.00
0.00	0.01	0.03	0.12	0.18	0.26	0.40	0.47	0.52	0.54	0.79	0.80	0.89	0.90	0.93	1.00

TEST SCORE = 40.

SCORE CHANGES
51.

TRANSITION MATRIX FOR SCORE =50.00

TTRIX

0.07	0.00	0.07	0.08	0.07	0.05	0.01	0.08	0.09	0.05	0.07	0.12	0.02	0.05	0.04	0.06
0.11	0.01	0.02	0.08	0.04	0.11	0.09	0.02	0.01	0.10	0.08	0.02	0.04	0.09	0.07	0.04
0.06	0.05	0.02	0.04	0.08	0.08	0.05	0.05	0.05	0.04	0.07	0.00	0.03	0.11	0.11	0.08
0.04	0.01	0.09	0.02	0.04	0.01	0.06	0.06	0.12	0.11	0.05	0.04	0.08	0.04	0.09	0.10
0.02	0.00	0.00	0.01	0.04	0.11	0.12	0.11	0.03	0.07	0.03	0.12	0.08	0.06	0.14	0.01
0.08	0.04	0.02	0.10	0.04	0.03	0.13	0.06	0.07	0.02	0.02	0.02	0.11	0.12	0.00	0.08
0.03	0.13	0.04	0.01	0.08	0.00	0.08	0.13	0.05	0.00	0.07	0.05	0.06	0.02	0.08	0.11
0.02	0.13	0.08	0.11	0.09	0.08	0.04	0.05	0.01	0.00	0.05	0.00	0.02	0.09	0.06	0.11
0.00	0.07	0.04	0.11	0.14	0.11	0.16	0.02	0.03	0.03	0.15	0.00	0.00	0.04	0.03	0.02
0.01	0.03	0.04	0.05	0.08	0.06	0.12	0.06	0.11	0.07	0.02	0.01	0.11	0.01	0.05	0.10
0.13	0.09	0.02	0.00	0.03	0.11	0.02	0.09	0.11	0.03	0.06	0.00	0.09	0.00	0.13	0.04
0.12	0.09	0.11	0.00	0.07	0.01	0.01	0.00	0.03	0.02	0.14	0.09	0.04	0.05	0.03	0.13
0.01	0.01	0.03	0.05	0.02	0.12	0.06	0.11	0.08	0.05	0.07	0.08	0.08	0.09	0.01	0.09
0.04	0.01	0.12	0.10	0.04	0.09	0.12	0.03	0.03	0.00	0.09	0.12	0.07	0.07	0.01	0.01
0.10	0.09	0.09	0.00	0.09	0.00	0.01	0.08	0.08	0.12	0.05	0.01	0.00	0.06	0.11	0.04
0.00	0.01	0.01	0.13	0.07	0.07	0.10	0.05	0.04	0.05	0.13	0.01	0.14	0.01	0.02	0.12

ATRIX

0.07	0.07	0.15	0.23	0.30	0.36	0.37	0.46	0.55	0.61	0.69	0.81	0.83	0.88	0.93	1.00
0.11	0.12	0.14	0.23	0.27	0.38	0.48	0.51	0.52	0.63	0.71	0.74	0.78	0.88	0.96	1.00
0.08	0.14	0.17	0.21	0.29	0.37	0.42	0.47	0.52	0.57	0.65	0.66	0.69	0.80	0.91	1.00
0.04	0.05	0.15	0.17	0.21	0.23	0.29	0.35	0.47	0.58	0.63	0.67	0.76	0.80	0.90	1.00
0.02	0.03	0.04	0.05	0.09	0.21	0.33	0.44	0.47	0.55	0.58	0.70	0.78	0.85	0.99	1.00
0.08	0.13	0.15	0.25	0.30	0.34	0.46	0.53	0.60	0.63	0.66	0.69	0.80	0.92	0.92	1.00
0.03	0.16	0.21	0.22	0.30	0.31	0.39	0.52	0.58	0.59	0.66	0.72	0.78	0.80	0.89	1.00
0.02	0.15	0.23	0.34	0.44	0.52	0.57	0.62	0.64	0.64	0.69	0.70	0.73	0.83	0.89	1.00
0.00	0.07	0.12	0.24	0.37	0.48	0.64	0.67	0.70	0.73	0.89	0.89	0.90	0.94	0.98	1.00
0.01	0.05	0.10	0.16	0.24	0.31	0.43	0.49	0.60	0.67	0.70	0.71	0.82	0.84	0.90	1.00
0.13	0.22	0.25	0.25	0.28	0.40	0.42	0.51	0.62	0.66	0.72	0.73	0.82	0.82	0.95	1.00
0.12	0.21	0.33	0.33	0.40	0.42	0.43	0.44	0.47	0.50	0.64	0.73	0.78	0.83	0.87	1.00
0.01	0.02	0.05	0.11	0.13	0.25	0.31	0.42	0.50	0.56	0.63	0.72	0.80	0.90	0.91	1.00
0.04	0.05	0.18	0.28	0.33	0.42	0.54	0.58	0.61	0.61	0.71	0.83	0.90	0.98	0.99	1.00
0.10	0.20	0.30	0.30	0.40	0.40	0.42	0.50	0.59	0.71	0.76	0.77	0.78	0.84	0.95	1.00
0.00	0.01	0.03	0.16	0.24	0.31	0.41	0.47	0.51	0.56	0.69	0.70	0.84	0.85	0.88	1.00

TEST SCORE = 50.

SCORE CHANGES

TRANSITION MATRIX FOR SCORE =60.00

TTRIX

0.03	0.00	0.01	0.06	0.04	0.06	0.02	0.12	0.11	0.02	0.04	0.17	0.02	0.08	0.06	0.10
0.06	0.01	0.02	0.10	0.03	0.16	0.10	0.02	0.01	0.07	0.12	0.02	0.05	0.03	0.10	0.04
0.19	0.05	0.01	0.03	0.02	0.07	0.03	0.06	0.02	0.04	0.05	0.00	0.02	0.14	0.10	0.13
0.02	0.01	0.12	0.02	0.04	0.01	0.07	0.07	0.09	0.13	0.04	0.04	0.05	0.02	0.07	0.14
0.02	0.00	0.00	0.01	0.02	0.11	0.12	0.10	0.03	0.05	0.02	0.12	0.12	0.05	0.18	0.00
0.11	0.00	0.01	0.04	0.03	0.02	0.08	0.16	0.11	0.02	0.01	0.03	0.08	0.18	0.00	0.06
0.03	0.19	0.02	0.01	0.04	0.00	0.03	0.09	0.05	0.00	0.07	0.05	0.11	0.02	0.15	0.11
0.03	0.05	0.10	0.08	0.12	0.01	0.05	0.06	0.02	0.00	0.04	0.00	0.02	0.06	0.06	0.23
0.00	0.16	0.05	0.03	0.15	0.04	0.07	0.01	0.03	0.02	0.30	0.00	0.00	0.02	0.03	0.02
0.01	0.03	0.04	0.02	0.07	0.05	0.04	0.11	0.04	0.06	0.01	0.01	0.31	0.02	0.04	0.09
0.37	0.11	0.01	0.00	0.01	0.06	0.01	0.04	0.01	0.03	0.02	0.00	0.08	0.00	0.15	0.03
0.07	0.05	0.18	0.00	0.10	0.01	0.01	0.00	0.04	0.03	0.03	0.12	0.04	0.06	0.05	0.17
0.01	0.01	0.05	0.05	0.02	0.00	0.06	0.14	0.10	0.09	0.07	0.11	0.08	0.06	0.00	0.11
0.04	0.01	0.13	0.04	0.04	0.09	0.11	0.03	0.01	0.00	0.24	0.11	0.09	0.01	0.00	0.01
0.13	0.01	0.03	0.00	0.07	0.00	0.02	0.02	0.17	0.19	0.07	0.01	0.00	0.06	0.10	0.05
0.00	0.01	0.02	0.16	0.01	0.10	0.04	0.08	0.02	0.07	0.05	0.01	0.15	0.02	0.03	0.17

ATRIX

0.03	0.03	0.05	0.11	0.16	0.23	0.25	0.37	0.48	0.50	0.55	0.72	0.75	0.83	0.90	1.00
0.06	0.08	0.10	0.20	0.24	0.39	0.50	0.52	0.54	0.62	0.74	0.76	0.82	0.85	0.95	1.00
0.19	0.24	0.25	0.29	0.31	0.38	0.42	0.48	0.50	0.54	0.60	0.60	0.63	0.77	0.87	1.00
0.02	0.03	0.16	0.18	0.23	0.25	0.32	0.39	0.49	0.62	0.66	0.71	0.77	0.79	0.86	1.00
0.02	0.03	0.03	0.04	0.07	0.18	0.30	0.40	0.43	0.48	0.51	0.63	0.75	0.81	0.99	1.00
0.11	0.12	0.13	0.18	0.22	0.25	0.33	0.50	0.60	0.63	0.64	0.67	0.76	0.93	0.93	1.00
0.03	0.22	0.24	0.26	0.30	0.31	0.34	0.44	0.49	0.49	0.57	0.62	0.73	0.75	0.89	1.00
0.03	0.08	0.19	0.28	0.40	0.41	0.47	0.53	0.55	0.56	0.60	0.61	0.64	0.70	0.77	1.00
0.00	0.17	0.23	0.27	0.41	0.45	0.53	0.54	0.58	0.60	0.90	0.91	0.92	0.94	0.98	1.00
0.01	0.04	0.08	0.11	0.18	0.24	0.28	0.40	0.44	0.50	0.51	0.52	0.83	0.86	0.90	1.00
0.37	0.48	0.50	0.50	0.52	0.59	0.60	0.65	0.66	0.69	0.72	0.73	0.81	0.81	0.96	1.00
0.07	0.12	0.30	0.31	0.41	0.42	0.44	0.44	0.49	0.52	0.55	0.67	0.71	0.77	0.83	1.00
0.01	0.02	0.07	0.13	0.15	0.16	0.22	0.36	0.46	0.55	0.63	0.73	0.82	0.89	0.89	1.00
0.04	0.05	0.19	0.24	0.28	0.37	0.48	0.51	0.52	0.52	0.77	0.87	0.96	0.98	0.99	1.00
0.13	0.15	0.18	0.19	0.26	0.27	0.29	0.31	0.48	0.67	0.75	0.77	0.77	0.84	0.94	1.00
0.00	0.02	0.04	0.21	0.22	0.32	0.37	0.45	0.47	0.55	0.60	0.62	0.76	0.79	0.83	1.00

TEST SCORE = 60.

SCORE CHANGES
50.

TRANSITION MATRIX FOR SCORE =70.00

TTRIX

0.06	0.00	0.01	0.04	0.05	0.05	0.02	0.10	0.06	0.05	0.01	0.12	0.01	0.15	0.07	0.14
0.01	0.01	0.02	0.07	0.05	0.22	0.13	0.03	0.01	0.02	0.09	0.01	0.05	0.01	0.18	0.02
0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.03
0.00	0.01	0.20	0.02	0.15	0.02	0.02	0.05	0.01	0.11	0.03	0.03	0.01	0.00	0.05	0.22
0.01	0.00	0.00	0.00	0.00	0.05	0.06	0.07	0.02	0.02	0.04	0.39	0.17	0.02	0.11	0.00
0.09	0.00	0.01	0.02	0.03	0.04	0.01	0.11	0.24	0.00	0.01	0.03	0.03	0.29	0.00	0.03
0.00	0.13	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.02	0.00	0.03	0.74
0.05	0.01	0.17	0.04	0.15	0.01	0.06	0.02	0.01	0.00	0.05	0.01	0.04	0.01	0.03	0.28
0.00	0.29	0.15	0.00	0.01	0.01	0.02	0.00	0.02	0.03	0.33	0.01	0.01	0.00	0.03	0.03
0.00	0.01	0.01	0.00	0.00	0.04	0.00	0.20	0.00	0.03	0.00	0.00	0.52	0.02	0.06	0.06
0.43	0.30	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.04	0.00	0.09	0.02
0.01	0.00	0.87	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02
0.01	0.01	0.08	0.02	0.04	0.01	0.02	0.08	0.18	0.13	0.03	0.12	0.07	0.03	0.00	0.13
0.01	0.01	0.08	0.01	0.04	0.07	0.06	0.02	0.00	0.00	0.27	0.07	0.24	0.03	0.01	0.01
0.09	0.01	0.01	0.00	0.02	0.00	0.05	0.00	0.00	0.55	0.03	0.03	0.02	0.00	0.05	0.03	0.05
0.03	0.07	0.05	0.05	0.02	0.01	0.05	0.00	0.01	0.25	0.01	0.04	0.06	0.19	0.05	0.07

ATRIX

0.06	0.06	0.08	0.13	0.18	0.23	0.25	0.36	0.42	0.48	0.49	0.62	0.63	0.79	0.86	1.00
0.01	0.03	0.05	0.13	0.18	0.40	0.53	0.56	0.58	0.61	0.71	0.72	0.78	0.79	0.97	1.00
0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.97	1.00
0.00	0.02	0.22	0.25	0.40	0.42	0.45	0.50	0.52	0.63	0.66	0.70	0.72	0.72	0.78	1.00
0.01	0.02	0.02	0.02	0.03	0.08	0.14	0.22	0.24	0.26	0.30	0.69	0.86	0.89	1.00	1.00
0.09	0.10	0.12	0.15	0.18	0.22	0.24	0.35	0.59	0.59	0.61	0.64	0.68	0.97	0.97	1.00
0.00	0.13	0.14	0.14	0.15	0.15	0.15	0.16	0.18	0.18	0.19	0.20	0.22	0.23	0.26	1.00
0.05	0.07	0.24	0.29	0.43	0.45	0.52	0.54	0.55	0.56	0.62	0.63	0.68	0.69	0.72	1.00
0.00	0.30	0.44	0.45	0.46	0.48	0.51	0.52	0.54	0.57	0.90	0.91	0.92	0.93	0.97	1.00
0.00	0.01	0.02	0.02	0.03	0.03	0.08	0.08	0.26	0.29	0.32	0.33	0.33	0.86	0.88	0.94	1.00
0.43	0.73	0.73	0.73	0.74	0.76	0.78	0.79	0.80	0.82	0.83	0.84	0.88	0.89	0.98	1.00
0.01	0.01	0.89	0.89	0.91	0.91	0.92	0.92	0.92	0.93	0.93	0.94	0.95	0.96	0.97	1.00
0.01	0.02	0.11	0.13	0.17	0.18	0.21	0.29	0.48	0.60	0.64	0.76	0.84	0.87	0.87	1.00
0.01	0.03	0.11	0.13	0.17	0.25	0.32	0.35	0.35	0.35	0.62	0.70	0.95	0.98	0.99	1.00
0.09	0.10	0.11	0.12	0.14	0.15	0.21	0.21	0.76	0.80	0.83	0.86	0.87	0.92	0.95	1.00
0.03	0.10	0.16	0.21	0.24	0.25	0.30	0.31	0.32	0.57	0.58	0.62	0.69	0.88	0.93	1.00

TEST SCORE = 70.

SCORE CHANGES

48.
60.
65.

TRANSITION MATRIX FOR SCORE =80.00

TTRIX

0.01 0.00 0.00 0.02 0.02 0.08 0.00 0.16 0.03 0.00 0.01 0.13 0.05 0.27 0.06 0.12
0.03 0.02 0.03 0.07 0.04 0.16 0.10 0.03 0.01 0.04 0.09 0.03 0.06 0.00 0.21 0.02
0.48 0.00 0.01 0.00 0.00 0.04 0.02 0.13 0.00 0.00 0.00 0.01 0.02 0.07 0.01 0.17
0.02 0.03 0.19 0.01 0.11 0.03 0.01 0.02 0.07 0.07 0.12 0.02 0.03 0.00 0.01 0.21
0.02 0.00 0.00 0.00 0.01 0.04 0.05 0.06 0.02 0.00 0.04 0.46 0.12 0.04 0.09 0.00
0.02 0.00 0.00 0.00 0.00 0.00 0.00 0.06 0.01 0.00 0.00 0.00 0.01 0.00 0.84 0.00 0.00
0.00 0.06 0.01 0.00 0.01 0.00 0.00 0.00 0.03 0.00 0.00 0.01 0.06 0.00 0.03 0.72
0.08 0.02 0.16 0.05 0.07 0.00 0.14 0.03 0.01 0.01 0.03 0.02 0.03 0.01 0.07 0.23
0.01 0.56 0.13 0.00 0.03 0.00 0.05 0.00 0.02 0.00 0.09 0.01 0.01 0.00 0.03 0.01
0.00 0.01 0.00 0.00 0.00 0.03 0.00 0.12 0.00 0.01 0.00 0.01 0.68 0.02 0.04 0.02
0.41 0.25 0.03 0.00 0.03 0.01 0.01 0.01 0.00 0.03 0.01 0.01 0.08 0.00 0.06 0.01
0.00 0.00 0.77 0.00 0.03 0.00 0.01 0.00 0.01 0.01 0.00 0.03 0.00 0.03 0.04 0.02
0.01 0.02 0.17 0.02 0.05 0.00 0.00 0.07 0.19 0.15 0.02 0.07 0.05 0.01 0.02 0.08
0.00 0.00 0.02 0.00 0.00 0.02 0.01 0.01 0.00 0.00 0.32 0.01 0.55 0.00 0.01 0.00
0.02 0.02 0.00 0.00 0.01 0.01 0.04 0.00 0.77 0.00 0.01 0.03 0.00 0.01 0.00 0.01
0.00 0.13 0.01 0.00 0.00 0.01 0.00 0.00 0.01 0.05 0.00 0.01 0.01 0.68 0.01 0.02

ATRIX

0.01 0.01 0.02 0.04 0.06 0.15 0.15 0.31 0.34 0.35 0.36 0.50 0.55 0.82 0.88 1.00
0.03 0.05 0.08 0.16 0.21 0.37 0.47 0.51 0.52 0.57 0.66 0.70 0.76 0.77 0.98 1.00
0.48 0.48 0.49 0.50 0.50 0.54 0.57 0.70 0.70 0.70 0.71 0.72 0.75 0.82 0.83 1.00
0.02 0.05 0.25 0.26 0.38 0.41 0.42 0.44 0.52 0.59 0.72 0.74 0.77 0.78 0.79 1.00
0.02 0.02 0.02 0.03 0.04 0.08 0.14 0.21 0.23 0.24 0.28 0.74 0.86 0.90 1.00 1.00
0.02 0.02 0.02 0.03 0.03 0.04 0.04 0.11 0.13 0.13 0.13 0.15 0.16 1.00 1.00 1.00
0.00 0.07 0.08 0.09 0.11 0.11 0.12 0.12 0.16 0.16 0.16 0.18 0.24 0.25 0.28 1.00
0.08 0.11 0.27 0.32 0.40 0.40 0.54 0.58 0.59 0.61 0.64 0.66 0.69 0.70 0.77 1.00
0.01 0.57 0.70 0.71 0.74 0.74 0.80 0.80 0.82 0.83 0.92 0.93 0.95 0.95 0.98 1.00
0.00 0.01 0.01 0.02 0.02 0.06 0.06 0.19 0.19 0.21 0.22 0.23 0.91 0.93 0.97 1.00
0.41 0.66 0.69 0.69 0.72 0.73 0.75 0.77 0.77 0.81 0.82 0.84 0.92 0.92 0.98 1.00
0.00 0.00 0.77 0.78 0.81 0.82 0.83 0.84 0.85 0.86 0.86 0.90 0.90 0.93 0.97 1.00
0.01 0.03 0.21 0.24 0.30 0.30 0.30 0.38 0.56 0.71 0.74 0.82 0.87 0.89 0.92 1.00
0.00 0.01 0.03 0.03 0.03 0.05 0.07 0.09 0.09 0.09 0.41 0.43 0.98 0.98 0.99 1.00
0.02 0.04 0.05 0.05 0.06 0.08 0.13 0.13 0.91 0.91 0.92 0.96 0.96 0.98 0.98 1.00
0.00 0.13 0.14 0.15 0.15 0.17 0.17 0.18 0.19 0.25 0.25 0.27 0.28 0.97 0.98 1.00

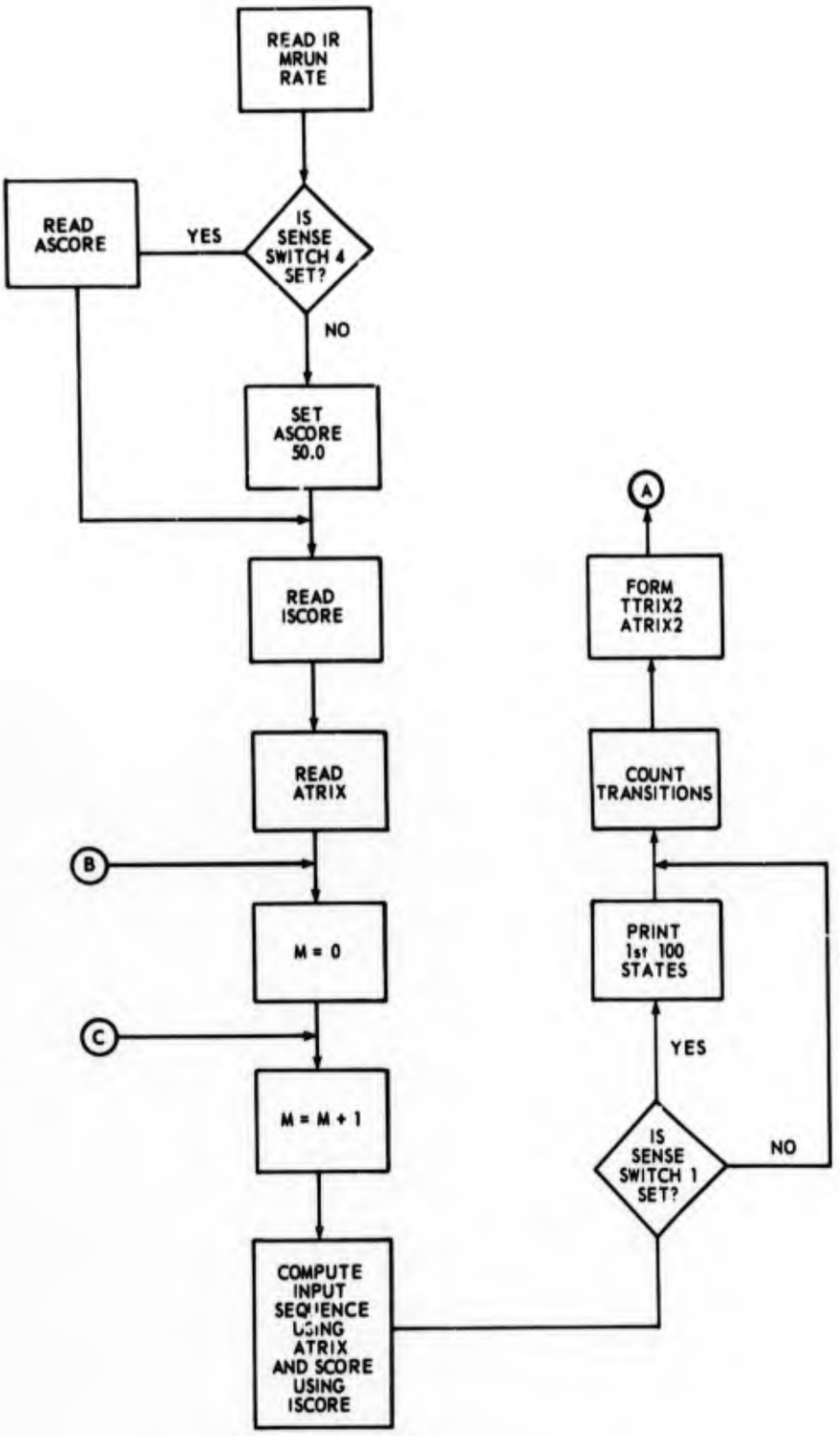
TEST SCORE = 80.

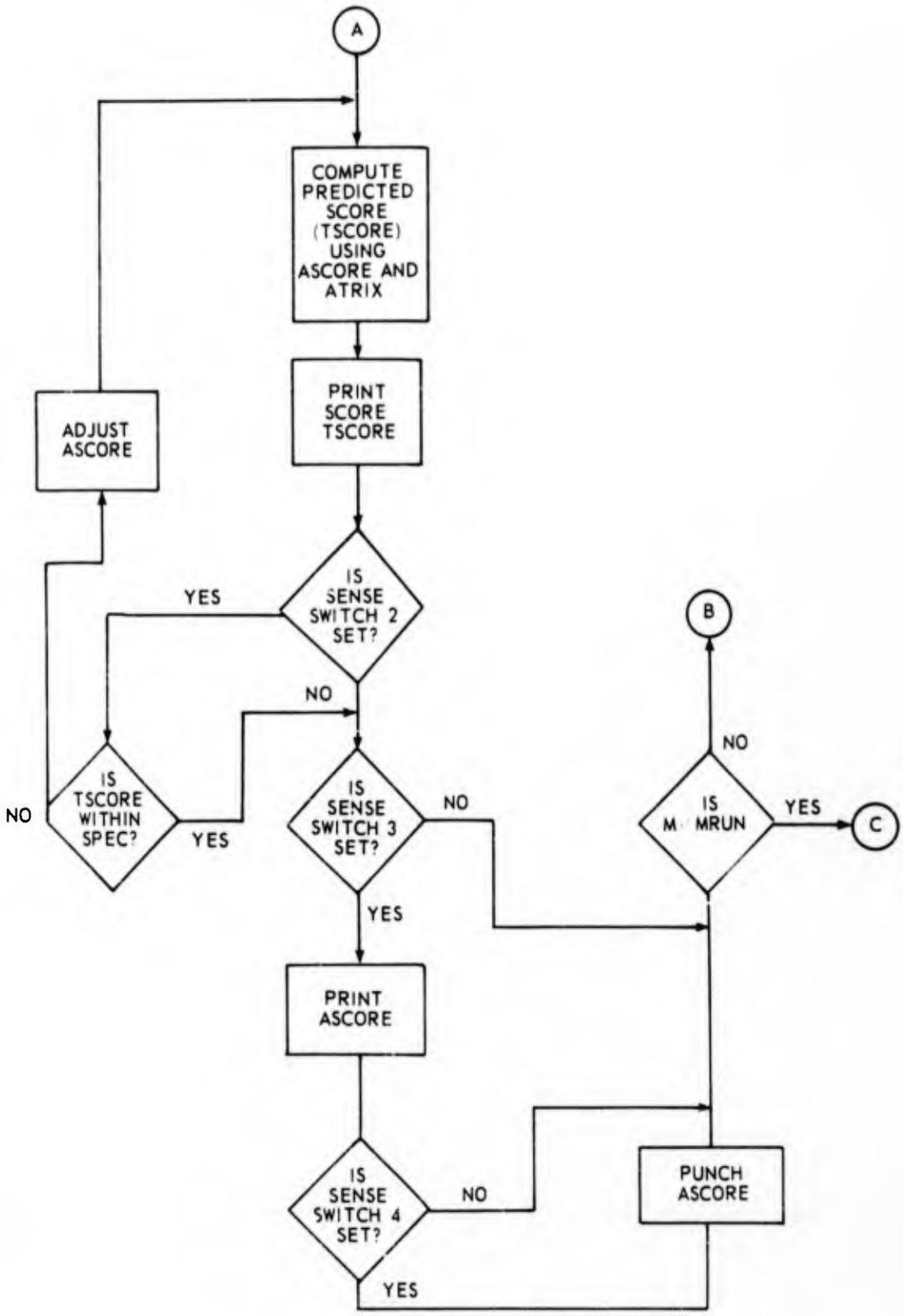
SCORE CHANGES

50.
55.
67.
75.

APPENDIX 5

COMPOSITE PROGRAM FOR GENERATION AND TEST OF STATE TRANSITION COMPUTATION TECHNIQUE


READ IR MRUN RATE
IS SENSE SWITCH 4 SET?
YES
READ ASCORE
NO
SET ASCORE 50.0
READ ISCORE
READ ATRIX
B
M = 0
C
M = M + 1
COMPUTE INPUT SEQUENCE USING ATRIX AND SCORE USING ISCORE
IS SENSE SWITCH 1 SET?
NO
YES
PRINT 1st 100 STATES
COUNT TRANSITIONS
FORM TTRIX2 ATRIX2
A


A
COMPUTE PREDICTED SCORE (TSCORE) USING ASCORE AND ATRIX
PRINT SCORE TSCORE
ADJUST ASCORE
IS SENSE SWITCH 2 SET?
YES
NO
IS TSCORE WITHIN SPEC?
NO
YES
IS SENSE SWITCH 3 SET?
NO
YES
PRINT ASCORE
IS SENSE SWITCH 4 SET?
NO
YES
B
NO
IS M MRUN
YES
C
PUNCH ASCORE

```
*JOB.
*ASSIGN S=MTO, SI=CR,LO=LP, BO=MT1.
*FORTRAN SI,LO,BO.
*     1  *
*     2  C      EMC  AMP  68-8/6
*     3  C      STATE TRANSITION COMPUTATION
*     4  C      PART II  DATA GENERATION
*     5         DIMENSION ATRIX(16,16),ISCORE(16,16),ISTATE(600),ATRIX2(16,16),
*     6        1TTRIX2(16,16),ASCORE(16,16)  , COUNT(16,16)
*     7  C      READ INPUT DATA
*     8         READ 100,(IR,MRUN)
*     9       100 FORMAT (2I7)
*    10       104 FORMAT (F10.0)
*    11         READ 104,RATE
*    12         PRINT 115,( IR,MRUN,RATE)
*    13       115 FORMAT(1H1,10X,$ IR=$,I7,$MRUNS,I7,$ RATE =$, F5.0)
*    14         III = 5**9
*    15         SMALL = 1./(2**23-1)
*    16         IF(SENSE SWITCH 4) 304,305
*    17       304 ACCEPT TAPE 303,((ASCORE(I,J),J=1,16),I=1,16)
*    18         GO TO 305
*    19         DO 2 I=1,16
*    20         DO 3 J=1,16
*    21         ASCORE(I,J) = 50.0
*    22       3 CONTINUE
*    23       2 CONTINUE
*    24       305 PAUSE 1
*    25         ACCEPT TAPE 102, ((ISCORE(I,J) , J=1,16), I=1,16)
*    26       102 FORMAT (16(I3,2X))
*    27         PAUSE 2
*    28       11 ACCEPT TAPE 105,((ATRIX(I,J),J=1,16),I=1,16)
*    29       105 FORMAT (16F4.2)
*    30  C      INITIAL CONDITIONS
*    31         M = 0
*    32       41 M=M+1
*    33  C      COMPUTE SEQUENCE OF STATES
*    34         SCORE = 0.
*    35         J=1
*    36         DO 10, K=1,600
*    37         I=J
*    38         IR = IR*III
*    39         R= (IR*0.5)*SMALL+0.5
*    40         DO 20 J=1,16
*    41         IF(ATRIX(I,J)-R) 20,21,21
*    42       21 ISTATE(K)=J
*    43         SCORE =SCORE+ISCORE(I,J)
*    44         GO TO 10
*    45       20 CONTINUE
*    46       10 CONTINUE
*    47         SCORE = SCORE/600.
*    48  C      PRINT OUT 100 STATES IF SENSE SWITCH 1 IS SET
*    49         IF (SENSE SWITCH 1) 30,31
*    50       30 PRINT 110
```

```
*    51     110 FORMAT(1H1,10X,8FIRST 100 STATES 8)
*    52         DO 15, J=1,100,5
*    53         K=J+4
*    54         PRINT 111,(ISTATE(I),I=J,K)
*    55     111 FORMAT(10X,5(I1C))
*    56      15 CONTINUE
*    57      31 CONTINUE
*    58  C      PART III DATA ANALYSIS + SCORE PREDICTION
*    59  C      COUNT TRANSITIONS
*    60         PRINT 1302
*    61         DO 12 I=1,16
*    62         DO 22 J=1,16
*    63         COUNT(I,J) = 0.0
*    64      22 CONTINUE
*    65      12 CONTINUE
*    66         J = 1
*    67         DO 32 K=1,600
*    68         I=J
*    69         J = ISTATE(K)
*    70         COUNT(I,J) = COUNT(I,J) + 1.0
*    71      32 CONTINUE
*    72  C      CONVERT TO TRANSITION MATRIX
*    73         DO 40 I= 1,16
*    74         SUM = 0.
*    75         DO 50 J= 1,16
*    76         SUM = SUM + COUNT(I,J)
*    77         ATRIX2(I,J)= SUM
*    78      50 CONTINUE
*    79         DO 60 J = 1,16
*    80         ATRIX2(I,J) = ATRIX2(I,J)/SUM
*    81         TTRIX2(I,J) = COUNT(I,J)/SUM
*    82      60 CONTINUE
*    83      40 CONTINUE
*    84  C      SCORE PREDICTION
*    85      51 TSCORE =0.0
*    86         J=1
*    87         DO 70 K=1,100
*    88         I=J
*    89         IR = IR*111
*    90         R=(IR+0.5)*SMALL+0.5
*    91         DO 80 J=1,16
*    92         IF (ATRIX2(I,J) -R) 80,81,81
*    93      81 TSCORE =TSCORE +ASCORE(I,J)
*    94         GO TO 70
*    95      80 CONTINUE
*    96      70 CONTINUE
*    97         TSCORE=  TSCORE/ 100.0
*    98       1 PRINT 122,SCORE,TSCORE
*    99         IF (SENSE SWITCH2) 4,200
*   100  C      TEST SCORE PREDICTION
*   101       4 IF (TSCORE +5.0-SCORE) 94,91,91
*   102      91 IF (TSCORE -5.0 -SCORE) 200,200,94
*   103      94 J=1
*   104  C      ADJUST ASCORE MATRIX
```

```
*   105          DO 95 K=1,100
*   106          I=J
*   107          IR = IR*111
*   108          RE = [IR*0.5]*SMALL + 0.5
*   109          DO 96 J=1,16
*   110          IF [ATRIX2[I,J]-RE] 96,98,98
*   111       98 ASCORE[I,J] = ASCORE[I,J] +[SCORE -TSCORE]/ RATE
*   112          IF [ASCORE [I,J]-100.0] 99,99,300
*   113      300 ASCORE[I,J]= 100.0
*   114          GOTO 95
*   115       99 IF [ASCORE[I,J]] 301,301,95
*   116      301 ASCORE[I,J] =0.0
*   117          GO TO 95
*   118       96 CONTINUE
*   119       95 CONTINUE
*   120          GO TO 51
*   121      200 IF[SENSE SWITCH 3] 201,202
*   122  C       PRINT ASCORE
*   123      201 CONTINUE
*   124          PRINT 1303
*   125          DO 16I=1,16
*   126          PRINT 113,[ASCORE[I,J],J=1,16]
*   127      113 FORMAT( 10X,16[F4.0])
*   128       16 CONTINUE
*   129          IF[SENSE SWITCH4] 302,202
*   130      302 PUNCH TAPE 303,[[ASCORE[I,J],J=1,16],I=1,16]
*   131      303 FORMAT [16F4.2]
*   132      202 IF[M-MRUN] 41,11,11
*   133      122 FORMAT[15X,F4.0,15X,F4.0]
*   134     1302 FORMAT[12X,$ SCORE$  ,5X,$TSCORE$]
*   135     1303 FORMAT[10X,$ASCORE$]
*   136  *       END
```

PROGRAM ALLOCATION

00004	ATRIX	01004	ISCORE	01404	ISTATE	02534	ATRIX2
03534	TTRIX2	04534	ASCORE	05534	COUNT	06534	IR
06535	MRUN	06536	III	06537	I	06540	J
06541	M	06542	K	06543	RATE	06545	SMALL
06547	SCORE	06551	R	06553	SUM	06555	TSCORE
06557	RE						

APPENDIX 6

RESULTS OF INITIAL EXPERIMENT WITH STATE TRANSITION COMPUTATION

Input factor = 1 Initial state ASCORE(I, J) = 0

RATE - 100

First Pass (learning mode)

Matrix (ATRIX) Number	Input Score	Case Number
1	15	1
1	14	2
1	16	3
1	15	4
1	15	5
1	15	6
1	15	7
1	15	8
1	14	9
1	14	10
2	24	11
3	33	12
4	38	13
5	50	14
6	59	15
7	72	16
8	79	17
9	87	18

Second Pass (learning mode)

1	16	19
2	24	20
3	31	21
4	40	22
5	49	23
6	58	24
7	72	25
8	79	26
9	86	27

FIRST 100 STATES

3	2	12	11	8
6	2	13	13	6
10	9	5	4	1
3	12	1	3	9
8	14	14	4	1
3	9	5	4	4
1	3	9	8	6
10	9	12	11	8
6	10	9	4	1
7	14	14	4	1
3	4	1	3	9
8	14	14	4	1
3	5	16	13	6
2	1	3	5	14
14	14	4	1	3
9	8	6	11	6
10	7	2	14	4
1	3	9	8	6
4	1	3	11	3
9	5	16	6	2

SCORE	TSCORE
15.	0.
15.	0.
15.	1.
15.	2.
15.	3.
15.	3.
15.	3.
15.	5.
15.	4.
15.	6.
15.	5.
15.	7.
15.	6.
15.	6.
15.	6.
15.	8.
15.	9.
15.	8.
15.	7.
15.	7.
15.	9.
15.	8.
15.	10.
15.	10.
15.	10.

ASCORE

0.	0.	31.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	3.	2.	4.	3.	0.	0.	0.	16.	1.	1.	2.	0.	0.	0.	0.
21.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	4.	0.	1.	0.	0.	0.	0.	0.	8.	2.	0.	0.	0.	0.	0.

2.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	9.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	2.	0.	7.	0.	0.	0.	0.	0.	6.	0.	2.
0.	0.	0.	0.	0.	0.	5.	0.	4.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	3.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
3.	0.	0.	8.	0.	0.	0.	0.	1.	0.	0.	0.	0.	7.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FIRST 100 STATES

3	7	11	8	6
10	7	10	9	8
6	2	1	3	5
7	10	9	14	14
4	8	6	10	7
8	6	10	9	7
6	10	9	6	2
3	9	7	12	1
3	9	6	10	7
7	12	1	3	4
14	14	14	14	14
14	4	1	3	9
8	6	2	14	6
2	1	3	9	8
6	10	7	10	7
1	3	11	14	4
1	3	4	1	3
4	1	3	3	10
7	11	9	8	7
5	4	1	3	9

SCORE	TSCORE
14.	9.
14.	9.
14.	9.
14.	10.

ASCORE

0.	0.	33.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	3.	2.	4.	4.	0.	0.	0.	17.	2.	1.	2.	0.	0.	0.	0.
22.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	5.	0.	1.	0.	0.	0.	0.	0.	8.	2.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	10.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	2.	0.	8.	0.	0.	0.	0.	0.	6.	0.	2.
0.	0.	0.	0.	0.	0.	6.	0.	5.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	3.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
0.	0.	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
3.	0.	0.	9.	0.	0.	0.	0.	1.	0.	0.	0.	0.	9.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FIRST 100 STATES

3	9	8	6	4
1	3	9	8	6
2	12	13	14	14
1	3	9	16	6
2	10	7	7	11
8	6	10	7	12
11	9	14	14	4
14	4	1	3	9
14	4	14	1	3
7	5	6	4	1
3	9	8	10	7
1	3	9	14	4
1	3	9	14	4
1	3	9	14	4
13	6	10	7	1
3	9	15	8	6
11	8	6	10	7
6	11	8	6	2
14	14	14	1	3
2	1	3	16	15

SCORE	TSCORE
16.	7.
16.	9.
16.	9.
16.	10.
16.	9.
16.	8.
16.	12.

ASCORE															
0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

app 6.5

FIRST 100 STATES

3	9	6	11	8
6	10	7	11	11
8	6	2	1	3
9	6	10	9	14
14	4	8	3	9
8	15	2	12	16
11	6	11	8	6
11	8	6	10	5
14	4	1	3	2
14	14	14	4	1
3	9	8	6	2
8	6	13	14	14
14	14	14	4	1
3	14	14	14	14
1	3	4	1	3
9	5	7	1	3
7	12	11	8	6
2	1	11	8	6
10	7	10	9	6
2	1	3	4	1

SCORE TSCORE

15. 11.

ASCORE

0.	0.	38.	0.	C.	0.	0.	0.	0.	C.	0.	C.	0.	0.	0.	C.
2.	1.	0.	1.	1.	0.	0.	C.	C.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	C.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	C.	C.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	C.	C.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	C.	0.	1C.	2.	0.	C.	0.	0.	0.
3.	C.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	C.	12.	0.	0.	C.	0.	0.	0.	2.	1.	0.	C.
0.	0.	0.	2.	3.	3.	1.	8.	C.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	C.	0.	7.	C.	6.	C.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	C.	0.	C.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	C.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

app. 6.6

FIRST 100 STATES

3	9	16	11	8
6	11	9	14	7
1	3	2	14	1
3	4	1	3	11
9	8	6	8	6
10	7	12	9	15
8	14	5	4	1
3	9	14	4	1
3	4	1	3	9
14	4	1	3	3
2	14	4	1	3
9	8	6	10	7
8	6	10	7	10
7	6	13	6	10
7	8	6	10	7
14	9	5	4	1
3	5	5	9	14
4	14	4	1	3
9	10	9	14	14
4	1	3	10	9

SCORE 15. TSCORE 12.

ASCORE

0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FIRST 100 STATES

3	9	9	14	14
4	14	14	1	3
9	8	6	10	7
5	4	1	11	8
6	8	6	10	7
11	9	6	10	7
5	4	1	3	5
7	10	3	9	8
6	2	1	3	9
10	7	10	12	1
3	9	14	7	1
3	11	8	6	10
7	4	14	1	3
11	8	6	2	16
5	7	8	6	10
7	5	14	14	4
1	3	9	8	6
2	16	5	4	1
3	9	8	6	10
11	8	14	4	1

SCORE 15. TSCORE 15.

ASCORE

0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

app 6.8

FIRST 100 STATES

3	5	7	3	4
14	14	14	14	11
8	13	14	4	14
4	1	3	15	5
14	1	3	9	4
1	3	5	11	8
6	10	7	1	3
9	8	6	10	7
5	4	1	3	4
14	9	8	6	16
5	4	1	3	9
6	11	6	10	9
14	4	14	14	6
10	7	7	1	3
9	8	6	11	8
6	10	9	8	6
10	3	3	9	14
1	3	11	8	9
4	1	3	9	16
9	5	4	1	7

SCORE 15. TSCORE 12.

ASCORE

0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

app 6.9

FIRST 100 STATES

3	4	1	3	9
14	4	1	3	9
8	13	6	10	9
15	3	9	8	6
3	5	4	14	4
1	3	9	9	14
4	1	3	5	4
14	4	1	3	9
4	14	4	1	3
9	14	14	14	6
2	3	5	4	1
3	9	14	14	4
1	3	9	14	4
1	3	9	10	9
5	4	1	3	2
13	6	10	8	13
12	7	8	3	9
5	1	3	9	8
6	10	4	1	3
9	6	10	9	4

SCORE TSCORE

15. 15.

ASCORE

0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

app 6.10

FIRST 100 STATES

3	9	10	7	7
11	8	6	10	9
4	1	3	5	16
11	9	6	11	11
9	14	14	4	1
3	4	1	3	9
5	3	13	14	14
4	1	3	9	9
5	2	1	3	7
5	4	1	3	4
14	14	4	14	11
11	9	6	10	5
4	1	3	9	8
6	13	6	11	6
4	1	3	9	14
4	1	3	9	8
6	10	7	6	10
7	10	9	6	4
1	3	9	16	3
9	8	13	2	9

SCORE TSCORE

14. 11.

ASCORE

0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

app 6.11

FIRST 100 STATES

3	9	14	4	1
3	9	6	10	9
8	6	4	1	3
16	11	8	6	10
7	7	4	1	3
9	6	10	3	9
14	4	1	3	2
14	1	3	9	9
14	14	14	14	4
1	3	7	5	3
9	10	7	8	6
10	7	1	3	9
1	3	2	5	4
1	3	9	14	4
1	3	2	9	8
6	11	9	14	14
13	10	7	6	10
9	7	11	8	6
10	9	6	2	10
7	8	6	6	10

SCORE 14. TSCORE 11.

ASCORE

0.	0.	38.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.	2.	1.	2.	0.	0.
0.	4.	2.	5.	4.	0.	0.	0.	19.	2.	1.	3.	0.	0.	0.	0.
25.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0.
0.	0.	0.	8.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.	5.	0.	2.	0.	0.	0.	0.	0.	10.	2.	0.	0.	0.	0.	0.
3.	0.	0.	0.	1.	0.	2.	1.	0.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	12.	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
0.	0.	0.	2.	3.	3.	1.	8.	0.	0.	0.	0.	0.	7.	0.	2.
0.	0.	0.	0.	0.	0.	7.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	0.	0.	5.	2.	0.	0.	0.	0.	0.	0.	0.
2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
4.	0.	0.	10.	0.	0.	0.	0.	1.	0.	0.	0.	0.	10.	0.	0.
0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FIRST 100 STATES

4	15	2	16	16
5	8	10	7	5
9	7	5	10	4
1	5	16	13	6
4	14	14	14	4
10	9	7	7	7
8	11	8	14	14
4	4	15	2	10
14	4	14	4	14
4	14	4	6	4
7	6	10	7	8
6	14	4	2	6
10	16	8	8	13
16	5	9	4	14
4	10	16	7	7
11	8	16	5	8
3	5	10	8	14
4	7	15	3	2
14	4	6	11	8
14	14	12	10	7

SCORE	TSCORE
24.	4.
24.	4.
24.	5.
24.	5.
24.	8.
24.	6.
24.	7.
24.	7.
24.	6.
24.	7.
24.	8.
24.	7.
24.	7.
24.	9.
24.	6.
24.	9.
24.	9.
24.	9.
24.	8.
24.	11.
24.	15.
24.	10.
24.	13.
24.	11.
24.	11.
24.	10.
24.	12.
24.	11.
24.	14.
24.	10.
24.	11.
24.	11.

app 6.13

	24.					13.									
	24.					12.									
	24.					14.									
	24.					14.									
	24.					15.									
	24.					14.									
	24.					16.									
	24.					16.									
	24.					12.									
	24.					16.									
	24.					13.									
	24.					16.									
	24.					13.									
	24.					15.									
	24.					15.									
	24.					17.									
	24.					20.									
ASCORE															
3.	0.	43.	9.	4.	2.	0.	0.	0.	4.	5.	2.	0.	0.	2.	0.
7.	1.	0.	1.	3.	1.	0.	0.	0.	7.	0.	2.	1.	7.	0.	2.
C.	8.	4.	6.	6.	1.	1.	0.	25.	3.	4.	3.	0.	0.	0.	0.
38.	3.	0.	3.	0.	2.	12.	4.	1.	4.	6.	4.	11.	35.	7.	0.
0.	2.	0.	15.	6.	0.	1.	5.	3.	5.	0.	0.	0.	1.	0.	5.
0.	10.	0.	16.	0.	2.	5.	0.	0.	19.	4.	0.	2.	2.	0.	0.
3.	0.	2.	5.	9.	3.	19.	9.	0.	1.	11.	8.	2.	0.	1.	0.
0.	2.	1.	4.	0.	26.	1.	6.	2.	1.	2.	0.	7.	14.	4.	0.
0.	0.	0.	6.	5.	6.	9.	11.	0.	2.	1.	1.	0.	14.	2.	4.
0.	0.	2.	4.	0.	0.	19.	3.	9.	0.	2.	2.	0.	0.	0.	6.
0.	0.	0.	0.	1.	5.	0.	28.	13.	1.	0.	0.	0.	0.	0.	2.
4.	0.	0.	2.	0.	0.	0.	0.	0.	1.	18.	0.	0.	1.	0.	0.
1.	0.	0.	1.	0.	9.	0.	1.	3.	0.	0.	0.	0.	6.	2.	1.
8.	2.	2.	59.	1.	0.	0.	0.	4.	0.	0.	5.	0.	30.	0.	0.
2.	5.	9.	0.	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.	3.	1.
0.	0.	0.	1.	9.	1.	5.	2.	3.	0.	0.	0.	1.	0.	0.	1.

FIRST 100 STATES

12	1	3	10	7
12	1	12	13	13
6	11	9	16	3
13	7	8	6	7
7	9	4	4	8
11	13	16	7	8
6	2	5	1	15
8	4	15	16	13
4	9	5	5	11
15	7	11	9	5
9	4	4	15	2
10	9	9	3	3
11	9	3	4	9
7	1	3	7	7
3	5	10	10	15
8	6	4	12	11
3	3	11	9	2
14	14	4	2	14
4	13	6	7	11
6	4	9	7	11

SCORE	TSCORE
33.	10.
33.	12.
33.	9.
33.	12.
33.	11.
33.	11.
33.	13.
33.	12.
33.	12.
33.	13.
33.	15.
33.	12.
33.	12.
33.	15.
33.	16.
33.	21.
33.	13.
33.	12.
33.	16.
33.	14.
33.	16.
33.	18.
33.	16.
33.	15.
33.	17.
33.	18.
33.	18.
33.	17.
33.	16.
33.	20.
33.	22.
33.	16.
33.	21.
33.	16.
33.	19.
33.	18.
33.	16.
33.	19.
33.	21.
33.	15.
33.	18.
33.	18.
33.	22.
33.	17.
33.	18.
33.	18.
33.	21.
33.	20.
33.	21.
33.	20.
33.	18.
33.	22.
33.	22.
33.	23.
33.	22.
33.	19.
33.	22.
33.	24.
33.	20.
33.	20.
33.	20.
33.	20.
33.	24.
33.	22.
33.	25.
33.	18.
33.	21.
33.	21.
33.	24.
33.	23.
33.	20.
33.	22.
33.	23.
33.	23.
33.	25.
33.	23.
33.	25.
33.	25.
33.	23.
33.	23.
33.	24.
33.	23.
33.	25.
33.	23.
33.	23.
33.	29.

ASCORE															
16.	0.	57.	21.	10.	2.	6.	5.	5.	10.	9.	10.	5.	1.	9.	6.
29.	1.	0.	5.	7.	8.	0.	1.	0.	18.	3.	4.	4.	21.	0.	3.
0.	19.	6.	14.	15.	8.	8.	0.	35.	8.	16.	4.	2.	5.	1.	0.
49.	5.	2.	10.	0.	3.	22.	12.	29.	10.	19.	8.	36.	54.	27.	3.
3.	5.	1.	20.	24.	0.	3.	17.	13.	19.	9.	0.	3.	15.	0.	8.
0.	25.	5.	62.	4.	12.	24.	0.	3.	35.	13.	4.	5.	2.	1.	16.
14.	1.	15.	7.	16.	5.	41.	29.	11.	3.	30.	26.	2.	5.	2.	2.
1.	9.	4.	12.	3.	67.	11.	7.	5.	2.	6.	3.	8.	21.	5.	2.
0.	11.	9.	31.	32.	34.	27.	15.	3.	10.	1.	1.	0.	17.	2.	10.
7.	1.	8.	5.	2.	0.	39.	5.	30.	3.	3.	2.	0.	0.	9.	7.
0.	2.	4.	0.	2.	28.	1.	53.	59.	1.	7.	0.	10.	0.	3.	5.
13.	3.	0.	2.	3.	3.	0.	0.	2.	1.	39.	0.	5.	3.	3.	0.
1.	0.	3.	9.	0.	31.	3.	4.	3.	2.	5.	4.	5.	12.	2.	6.
11.	2.	11.	98.	9.	0.	9.	0.	4.	0.	3.	6.	0.	53.	0.	0.
3.	22.	17.	0.	2.	2.	0.	13.	0.	1.	0.	0.	0.	0.	11.	3.
0.	0.	2.	1.	16.	7.	15.	5.	4.	0.	13.	3.	5.	0.	0.	1.

ajp 6.15

FIRST 100 STATES

app6.16

8	14	13	11	13
9	4	7	5	9
6	13	4	15	16
11	9	5	14	5
7	7	7	5	6
10	11	1	13	8
8	14	4	15	16
9	6	7	7	14
6	2	14	4	16
8	6	4	7	7
1	11	15	3	6
10	6	13	11	6
4	3	2	1	8
2	4	1	12	3
8	14	4	15	9
14	7	3	4	11
6	13	14	15	2
6	2	10	9	5
10	16	13	14	7
3	15	14	15	5

SCORE	TSCORE
38.	20.
38.	22.
38.	22.
38.	22.
38.	19.
38.	21.
38.	20.
38.	20.
38.	22.
38.	25.
38.	21.
38.	19.
38.	24.
38.	25.
38.	21.
38.	28.
38.	25.
38.	20.
38.	24.
38.	23.
38.	25.
38.	28.
38.	23.
38.	25.
38.	22.
38.	27.
38.	24.
38.	23.
38.	27.
38.	24.
38.	26.
38.	31.

app 6.17

38.	25.
38.	24.
38.	25.
38.	22.
38.	28.
38.	26.
38.	22.
38.	27.
38.	23.
38.	25.
38.	25.
38.	25.
38.	23.
38.	30.
38.	29.
38.	24.
38.	31.
38.	27.
38.	28.
38.	27.
38.	28.
38.	24.
38.	33.

ASCORE

21.	0.	61.	31.	14.	5.	6.	11.	9.	13.	16.	14.	9.	1.	12.	8.
36.	1.	2.	9.	9.	10.	4.	1.	0.	24.	6.	4.	4.	31.	0.	3.
4.	21.	11.	20.	17.	11.	10.	2.	41.	11.	17.	4.	3.	7.	2.	0.
59.	5.	7.	16.	0.	3.	32.	18.	33.	14.	22.	10.	37.	58.	42.	8.
3.	5.	2.	21.	24.	8.	8.	24.	18.	23.	10.	3.	4.	18.	0.	9.
3.	35.	5.	75.	5.	15.	35.	2.	8.	42.	15.	6.	17.	2.	1.	25.
19.	1.	21.	9.	21.	5.	60.	48.	16.	3.	37.	33.	2.	6.	5.	2.
1.	18.	6.	13.	3.	87.	16.	10.	5.	2.	12.	3.	8.	32.	8.	3.
0.	13.	9.	40.	40.	44.	33.	17.	4.	15.	3.	1.	0.	19.	2.	11.
7.	2.	10.	5.	5.	6.	48.	5.	34.	5.	3.	4.	3.	0.	11.	11.
5.	6.	5.	0.	2.	38.	3.	59.	66.	1.	10.	0.	16.	0.	7.	5.
25.	7.	3.	2.	3.	3.	0.	0.	2.	1.	43.	2.	5.	5.	3.	0.
1.	0.	3.	10.	0.	40.	3.	9.	4.	4.	8.	8.	8.	20.	2.	9.
14.	2.	12.	100.	11.	4.	12.	1.	5.	0.	3.	11.	6.	67.	3.	0.
3.	27.	27.	0.	7.	2.	4.	15.	3.	3.	0.	0.	0.	1.	14.	7.
0.	0.	2.	4.	19.	11.	20.	7.	8.	0.	19.	3.	9.	0.	0.	3.

FIRST 100 STATES

12	1	11	8	6
10	8	8	7	5
7	9	5	14	11
3	8	2	7	2
6	13	10	9	4
16	7	16	6	14
13	14	13	8	11
16	10	9	3	7
2	10	6	13	13
5	13	7	9	13
11	15	1	11	15
8	8	*	8	13
13	6	14	12	15
14	7	11	12	10
7	16	6	3	9
8	2	7	14	7
4	3	6	16	9
8	6	2	7	2
1	6	13	11	6
16	3	14	5	12

app 6.18

SCORE	TSCORE
50.	25.
50.	22.
50.	23.
50.	26.
50.	25.
50.	28.
50.	24.
50.	26.
50.	25.
50.	26.
50.	25.
50.	28.
50.	29.
50.	25.
50.	30.
50.	28.
50.	27.
50.	25.
50.	31.
50.	33.
50.	32.
50.	28.
50.	28.
50.	28.
50.	28.
50.	28.
50.	32.
50.	29.
50.	29.
50.	30.
50.	29.
50.	30.

50.	29.	50.	38.
50.	32.	50.	37.
50.	32.	50.	35.
50.	29.	50.	33.
50.	32.	50.	39.
50.	29.	50.	34.
50.	32.	50.	38.
50.	28.	50.	37.
50.	31.	50.	40.
50.	31.	50.	43.
50.	32.	50.	38.
50.	32.	50.	36.
50.	31.	50.	42.
50.	29.	50.	40.
50.	32.	50.	33.
50.	32.	50.	36.
50.	34.	50.	35.
50.	35.	50.	41.
50.	35.	50.	43.
50.	30.	50.	40.
50.	32.	50.	38.
50.	32.	50.	36.
50.	33.	50.	39.
50.	36.	50.	44.
50.	34.	50.	39.
50.	33.	50.	39.
50.	30.	50.	35.
50.	35.	50.	40.
50.	33.	50.	36.
50.	31.	50.	36.
50.	32.	50.	37.
50.	33.	50.	38.
50.	36.	50.	37.
50.	33.	50.	37.
50.	33.	50.	34.
50.	33.	50.	39.
50.	33.	50.	39.
50.	33.	50.	40.
50.	40.	50.	38.
50.	35.	50.	41.
50.	39.	50.	37.
50.	38.	50.	42.
50.	40.	50.	37.
50.	30.	50.	41.
50.	33.	50.	41.
50.	36.	50.	40.
50.	38.	50.	38.
50.	33.	50.	43.
50.	37.	50.	42.
50.	37.	50.	42.
50.	34.	50.	43.
50.	35.	50.	41.
50.	37.	50.	43.
		50.	41.

50.
50.
50.
50.
50.

39.
44.
38.
38.
49.

ajop 6.20

ASCORE

38. 0. 74. 53. 28. 17. 7. 35. 41. 33. 51. 34. 11. 2. 25. 30.
64. 9. 4. 21. 12. 26. 37. 3. 0. 47. 16. 8. 17. 43. 5. 7.
25. 30. 13. 24. 31. 26. 21. 10. 57. 20. 27. 7. 9. 24. 24. 7.
62. 5. 22. 23. 7. 4. 62. 27. 59. 28. 36. 19. 59. 64. 70. 29.
6. 6. 3. 25. 40. 55. 36. 41. 23. 49. 18. 27. 25. 45. 7. 11.
27. 53. 12. 100. 14. 28. 72. 21. 21. 56. 27. 36. 48. 23. 1. 47.
34. 36. 36. 11. 60. 13. 81. 97. 55. 3. 71. 50. 15. 28. 16. 39.
11. 59. 15. 62. 28. 100. 35. 34. 14. 2. 33. 6. 32. 52. 27. 11.
0. 19. 30. 68. 75. 68. 68. 36. 9. 18. 47. 1. 7. 22. 8. 22.
7. 8. 21. 15. 16. 11. 93. 13. 62. 16. 8. 5. 11. 3. 13. 27.
42. 35. 8. 0. 12. 90. 15. 100. 97. 4. 20. 4. 26. 0. 29. 28.
42. 22. 17. 4. 9. 3. 0. 0. 3. 10. 68. 12. 13. 15. 14. 12.
3. 0. 10. 18. 7. 74. 17. 52. 13. 11. 30. 22. 37. 47. 7. 21.
18. 3. 31. 100. 18. 21. 56. 1. 13. 0. 24. 29. 22. 99. 4. 0.
13. 36. 57. 0. 30. 2. 13. 35. 14. 21. 3. 4. 0. 10. 38. 14.
0. 0. 9. 19. 30. 37. 51. 31. 22. 5. 50. 4. 40. 0. 5. 26.

FIRST 100 STATES

11	1	9	3	8
2	6	8	15	10
8	5	15	11	1
4	8	4	16	14
13	9	11	15	9
2	11	8	11	16
11	5	7	14	7
16	10	3	15	6
12	15	9	11	6
2	10	13	12	12
3	10	2	9	2
10	13	12	12	3
14	11	13	10	15
16	4	7	9	5
15	5	7	13	10
3	16	16	16	13
8	15	11	15	11
1	9	6	7	16
4	2	4	13	11
1	10	1	15	9

SCORE	TSCORE
59.	39.
59.	36.
59.	37.
59.	38.
59.	37.
59.	38.
59.	38.
59.	42.
59.	38.
59.	38.
59.	41.
59.	38.
59.	39.
59.	41.
59.	41.
59.	41.
59.	45.
59.	41.
59.	39.
59.	39.
59.	44.
59.	35.
59.	42.
59.	46.
59.	46.
59.	42.
59.	43.
59.	42.
59.	41.
59.	45.
59.	43.
59.	43.
59.	40.
59.	39.
59.	44.
59.	44.
59.	43.
59.	46.
59.	49.
59.	45.
59.	44.
59.	43.
59.	44.
59.	44.
59.	46.
59.	46.
59.	44.
59.	49.
59.	46.
59.	46.
59.	44.
59.	48.
59.	46.
59.	47.
59.	50.
59.	49.
59.	47.
59.	46.
59.	51.
59.	45.
59.	47.
59.	47.
59.	51.
59.	52.
59.	46.
59.	51.
59.	45.
59.	48.
59.	45.
59.	46.
59.	52.
59.	53.
59.	47.
59.	46.
59.	47.
59.	49.
59.	48.
59.	49.
59.	48.
59.	46.
59.	54.
59.	47.
59.	49.
59.	47.

59.	51.
59.	46.
59.	50.
59.	51.
59.	50.
59.	44.
59.	49.
59.	47.
59.	51.
59.	53.
59.	45.
59.	50.
59.	52.
59.	50.
59.	51.
59.	48.
59.	52.
59.	51.
59.	53.
59.	49.
59.	51.
59.	53.
59.	49.
59.	51.
59.	52.
59.	49.
59.	54.
59.	48.
59.	50.
59.	53.
59.	49.
59.	50.
59.	52.
59.	51.
59.	48.
59.	55.

app 6.22

ASCORE

46.	0.	80.	67.	35.	38.	7.	67.	66.	48.	69.	65.	15.	12.	34.	47.
81.	9.	6.	42.	18.	44.	42.	4.	4.	58.	30.	10.	22.	54.	16.	16.
42.	35.	19.	32.	43.	36.	26.	22.	60.	32.	36.	7.	11.	47.	37.	33.
67.	8.	28.	27.	17.	6.	79.	44.	77.	47.	39.	28.	70.	65.	82.	47.
12.	6.	4.	25.	46.	79.	54.	64.	24.	63.	19.	42.	38.	53.	34.	11.
51.	62.	13.	100.	24.	38.	92.	43.	40.	60.	30.	46.	63.	41.	1.	60.
37.	59.	40.	13.	69.	14.	85.	100.	63.	3.	87.	59.	36.	34.	33.	65.
16.	78.	53.	85.	52.	100.	53.	46.	16.	2.	43.	6.	35.	64.	48.	53.
0.	47.	41.	77.	94.	81.	80.	40.	15.	22.	81.	1.	8.	29.	18.	33.
11.	18.	36.	23.	29.	19.	91.	22.	70.	27.	12.	7.	50.	15.	29.	33.
100.	49.	9.	0.	21.	100.	18.	100.	100.	10.	27.	5.	41.	0.	65.	42.
72.	28.	38.	4.	22.	4.	1.	1.	7.	17.	83.	28.	23.	24.	22.	34.
3.	2.	16.	28.	8.	88.	28.	80.	28.	33.	41.	52.	64.	63.	10.	31.
20.	7.	63.	100.	27.	39.	77.	5.	15.	0.	49.	44.	37.	100.	7.	0.
34.	47.	65.	0.	42.	11.	17.	44.	53.	49.	27.	6.	0.	23.	50.	22.
0.	5.	13.	56.	33.	58.	78.	51.	27.	23.	77.	4.	68.	16.	12.	80.

FIRST 100 STATES

1	12	3	1	3
1	4	3	1	8
16	3	1	10	13
10	13	16	7	16
14	5	15	10	13
12	3	1	9	14
1	16	10	13	12
3	1	14	7	16
12	3	1	12	3
1	10	15	9	11
2	11	1	15	10
8	1	8	15	9
3	1	14	13	9
2	4	3	16	16
3	1	4	10	10
10	13	11	1	6
9	13	9	8	1
14	13	3	1	10
13	9	2	7	16
2	16	4	8	5

SCORE	TSCORE
72.	46.
72.	48.
72.	47.
72.	49.
72.	53.
72.	49.
72.	46.
72.	49.
72.	50.
72.	52.
72.	53.
72.	51.
72.	49.
72.	53.
72.	51.
72.	57.
72.	49.
72.	55.
72.	54.
72.	53.
72.	53.
72.	57.
72.	56.
72.	59.
72.	59.
72.	60.
72.	57.
72.	56.
72.	60.
72.	56.
72.	57.
72.	59.

Ap #6.23

72.	59.
72.	60.
72.	58.
72.	60.
72.	55.
72.	66.
72.	59.
72.	65.
72.	57.
72.	57.
72.	63.
72.	60.
72.	63.
72.	62.
72.	61.
72.	60.
72.	61.
72.	59.
72.	60.
72.	64.
72.	65.
72.	60.
72.	57.
72.	63.
72.	63.
72.	61.
72.	65.
72.	59.
72.	62.
72.	58.
72.	66.
72.	62.
72.	62.
72.	64.
72.	65.
72.	62.
72.	64.
72.	58.
72.	61.
72.	71.

app 6.24

ASCORE

57.	0.	81.	78.	41.	58.	10.	92.	79.	59.	71.	93.	25.	43.	53.	68.
84.	11.	8.	57.	19.	60.	45.	4.	5.	62.	40.	10.	25.	57.	27.	17.
100.	36.	19.	33.	43.	38.	26.	24.	60.	32.	38.	7.	12.	52.	39.	41.
67.	9.	41.	28.	26.	7.	83.	49.	79.	53.	41.	34.	71.	65.	84.	54.
15.	6.	4.	26.	46.	82.	56.	71.	25.	64.	20.	55.	46.	57.	43.	11.
59.	63.	14.	100.	27.	40.	96.	50.	54.	61.	35.	49.	65.	58.	1.	63.
38.	67.	40.	13.	70.	14.	85.	100.	65.	3.	87.	61.	36.	36.	37.	92.
27.	81.	64.	95.	59.	100.	54.	48.	17.	2.	49.	7.	37.	65.	53.	71.
0.	73.	50.	78.	100.	82.	82.	42.	17.	22.	100.	2.	10.	31.	18.	34.
11.	19.	37.	24.	29.	30.	92.	31.	71.	33.	12.	7.	93.	17.	37.	38.
100.	76.	10.	0.	22.	100.	19.	100.	100.	11.	28.	5.	45.	0.	73.	44.
76.	29.	90.	4.	23.	4.	1.	1.	9.	21.	84.	31.	25.	25.	24.	40.
5.	2.	24.	29.	12.	89.	30.	90.	40.	56.	45.	67.	72.	70.	10.	43.

25. 11. 76.100. 32. 43. 59. 8. 15. 0. 77. 48. 50.100. 7. 1.
42. 47. 66. 0. 49. 11. 28. 45. 77. 59. 35. 8. 0. 30. 57. 23.
5. 8. 22. 73. 35. 64. 85. 54. 28. 47. 79. 9. 78. 26. 21. 99.

Part of appendix

FIRST 100 STATES

8	7	16	14	11
10	13	11	1	8
3	1	8	16	13
2	7	7	13	9
3	1	14	13	10
13	5	12	3	3
8	16	14	13	12
3	16	14	13	13
11	13	12	3	16
14	11	12	3	16
14	11	1	9	2
14	3	8	16	14
13	9	2	7	16
2	13	12	14	3
1	14	13	15	9
3	7	16	2	15
9	15	3	2	6
14	11	7	16	14
11	12	3	7	16
14	15	9	3	16

SCORE	TSCORE
79.	63.
79.	69.
79.	60.
79.	60.
79.	62.
79.	60.
79.	62.
79.	63.
79.	68.
79.	65.
79.	68.
79.	64.
79.	64.
79.	63.
79.	64.
79.	66.
79.	68.
79.	65.
79.	65.
79.	66.
79.	63.
79.	69.
79.	65.
79.	68.
79.	65.
79.	69.
79.	64.
79.	67.
79.	68.
79.	65.
79.	67.
79.	70.

79.	68.
79.	70.
79.	68.
79.	71.
79.	68.
79.	69.
79.	67.
79.	72.
73.	66.
79.	72.
79.	69.
73.	65.
73.	67.
73.	69.
73.	74.

app 6.26

ASCORE

39.	0.	42.	80.	44.	64.	11.	100.	85.	61.	72.	100.	28.	68.	58.	77.
66.	11.	12.	61.	23.	75.	56.	5.	5.	63.	46.	11.	28.	58.	38.	18.
100.	36.	21.	33.	43.	40.	30.	34.	60.	42.	39.	8.	14.	57.	39.	52.
87.	9.	44.	26.	28.	7.	83.	51.	80.	87.	42.	34.	72.	65.	84.	56.
15.	6.	4.	26.	47.	83.	58.	73.	25.	65.	21.	70.	53.	58.	44.	11.
50.	63.	14.	100.	27.	41.	96.	54.	58.	61.	35.	51.	66.	72.	1.	63.
38.	71.	40.	13.	70.	14.	86.	100.	65.	3.	87.	62.	39.	36.	37.	100.
29.	82.	73.	96.	68.	100.	61.	50.	17.	2.	52.	9.	40.	65.	54.	89.
0.	100.	58.	79.	100.	82.	86.	42.	18.	24.	100.	3.	12.	31.	20.	35.
11.	13.	37.	24.	29.	31.	92.	38.	71.	33.	12.	7.	100.	18.	39.	39.
100.	93.	11.	0.	23.	100.	70.	100.	100.	16.	29.	10.	51.	0.	75.	45.
77.	29.	100.	6.	26.	4.	2.	1.	10.	22.	64.	32.	95.	27.	26.	42.
5.	3.	41.	31.	18.	89.	30.	99.	64.	66.	51.	73.	60.	71.	12.	52.
85.	11.	81.	100.	33.	46.	93.	13.	15.	0.	100.	52.	82.	100.	12.	1.
43.	47.	66.	0.	49.	11.	29.	45.	100.	60.	35.	9.	0.	31.	57.	24.
5.	21.	25.	75.	37.	64.	85.	55.	28.	58.	79.	12.	81.	66.	22.	100.

FIRST 100 STATES

App 6.27

14	13	3	1	8
5	12	3	1	14
13	3	1	16	14
13	3	1	14	13
3	1	14	13	3
1	15	7	16	14
13	3	1	14	13
3	1	14	13	3
1	5	7	13	3
1	16	14	13	3
1	14	13	3	1
16	14	13	3	1
6	14	13	3	1
16	14	13	3	1
16	14	13	3	1
14	13	3	1	7
16	14	13	3	1
14	13	3	1	16
14	13	3	1	14
13	3	1	5	13

SCORE	TSCORE
87.	78.
87.	75.
87.	79.
87.	81.
87.	78.
87.	78.
87.	80.
87.	81.
87.	79.
87.	84.

ASCORE														
80.	0.	82.	80.	46.	69.	11.	100.	86.	62.	73.	100.	31.	78.	60.	85.
86.	12.	14.	64.	24.	78.	58.	5.	5.	65.	49.	12.	29.	58.	43.	18.
100.	36.	21.	33.	43.	41.	31.	38.	60.	32.	39.	8.	16.	59.	40.	56.
67.	9.	44.	28.	29.	7.	83.	51.	82.	57.	45.	34.	72.	65.	84.	56.
15.	6.	4.	26.	47.	83.	59.	73.	25.	65.	22.	73.	55.	58.	45.	11.
60.	63.	14.	100.	27.	41.	96.	55.	58.	61.	35.	52.	66.	81.	1.	63.
38.	73.	40.	13.	70.	14.	86.	100.	65.	3.	87.	63.	40.	36.	37.	100.
29.	83.	75.	97.	69.	100.	62.	50.	17.	2.	53.	9.	42.	65.	55.	91.
0.	100.	61.	79.	100.	82.	86.	42.	19.	25.	100.	4.	13.	31.	21.	35.
11.	19.	37.	24.	29.	33.	92.	38.	71.	33.	12.	7.	100.	18.	41.	40.
100.	98.	13.	0.	24.	100.	20.	100.	100.	17.	29.	11.	53.	0.	76.	45.
77.	29.	100.	6.	26.	4.	2.	1.	10.	22.	84.	33.	25.	28.	26.	43.
7.	4.	57.	31.	21.	89.	30.	100.	71.	72.	53.	7.	82.	71.	12.	56.
25.	12.	81.	100.	33.	47.	94.	14.	15.	0.	100.	53.	100.	100.	13.	1.
43.	47.	66.	0.	49.	11.	31.	45.	100.	60.	35.	9.	0.	31.	57.	24.
5.	24.	25.	75.	37.	65.	85.	55.	28.	61.	79.	12.	81.	85.	22.	100.

FIRST 100 STATES

3	4	1	3	9
6	10	2	2	9
4	1	3	9	4
1	3	2	14	4
1	7	1	3	7
3	9	14	4	1
3	2	1	7	10
7	5	4	1	3
9	7	12	1	3
9	4	1	3	4
1	3	5	4	1
3	15	2	13	4
1	3	9	14	4
1	3	4	1	3
9	6	4	1	3
9	14	4	1	3
9	6	4	1	3
9	14	14	14	1
3	5	4	1	3
5	16	7	6	10

SCORE	TSCORE
16.	69.
16.	55.
16.	64.
16.	56.
16.	58.
16.	56.
16.	51.
16.	50.
16.	46.
16.	47.
16.	44.
16.	47.
16.	51.
16.	40.
16.	46.
16.	41.
16.	41.
16.	42.
16.	44.
16.	36.
16.	39.
16.	34.
16.	33.
16.	32.
16.	40.
16.	31.
16.	42.
16.	34.
16.	36.
16.	32.
16.	31.
16.	34.

ajsp 6.28

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     16.                34.
     16.                29.                                 cyp 6.29
     16.                28.                16.                31.
     16.                31.                16.                31.
     16.                30.                16.                32.
     16.                34.                16.                31.
     16.                35.                16.                28.
     16.                36.                16.                34.
     16.                36.                16.                22.
     16.                32.                16.                24.
     16.                36.                16.                24.
     16.                29.                16.                29.
     16.                29.                16.                28.
     16.                34.                16.                29.
     16.                32.                16.                26.
     16.                25.                16.                30.
     16.                31.                16.                27.
     16.                35.                16.                30.
     16.                27.                16.                30.
     16.                31.                16.                18.
ASCORE
  60.  0.  0. 80. 46. 70.  2.10C. 87. 62. 73.100. 31. 82. 60. 89.
  74. 11.  9. 64. 21. 75. 58.  4.  3. 6C. 49.  3. 24. 53. 43. 10.
 100. 12. 12.  0. 19. 41. 29. 38.  C. 24. 37.  6. 16. 59. 35. 50.
   0.  9. 44. 28. 29.  7. 83. 49. 82. 57. 45. 34. 69. 56. 84. 56.
  15.  6.  0.  C. 44. 81. 52. 73. 26. 65. 22. 74. 55. 54. 45.  3.
  60. 49. 12. 80. 27. 41. 93. 55. 58.  5. 27. 52. 66. 83.  1. 63.
  20. 67. 37. 10. 64. 12. 76. 89. 64.  C. 82. 50. 38. 32. 37.100.
  29. 83. 70. 97. 69. 45. 62. 50. 17.  0. 53.  9. 33. 63. 55. 91.
   C.100. 61. 66. 92. 64. 81. 18. 11. 25.1C0.  4. 12.  0. 14. 30.
  11. 11. 37. 19. 26. 33. 52. 37. 53. 33. 10.  7.1CC. 18. 38. 4C.
 100. 99. 11.  C. 18.100. 20. 73. 97. 17. 27. 11. 53.  0. 76. 45.
  73. 29.100.  6. 26.  4.  2.  1. 1C. 22. 64. 33. 22. 28. 26. 43.
   5.  4. 67. 27. 21. 77. 30. 99. 71. 72. 53. 76. 82. 67. 12. 54.
  17. 12. 81. 56. 30. 41. 92. 14.  8.  0.1C0. 53. 97. 44. 13.  1.
  43. 41. 65.  0. 48. 11. 32. 39.100. 60. 35.  9.  0. 31. 55. 24.
   5. 24. 25. 75. 37. 61. 73. 55. 25. 59. 76.  7. 81. 89. 22. 97.
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Part of 6.29

FIRST 100 STATES

10	7	4	14	14
14	14	14	3	11
8	14	4	1	11
8	4	14	14	4
13	4	14	5	10
9	7	4	7	14
14	9	15	11	8
6	7	11	8	6
7	11	8	4	7
7	7	7	8	11
9	6	7	7	12
11	8	14	14	4
1	11	5	7	7
5	5	16	11	9
7	7	6	3	3
10	7	11	6	4
2	14	4	13	11
8	6	4	14	4
13	4	15	15	3
4	14	4	8	7

SCORE	TSCORE
24.	44.
24.	50.
24.	50.
24.	42.
24.	51.
24.	43.
24.	41.
24.	42.
24.	41.
24.	42.
24.	43.
24.	43.
24.	37.
24.	43.
24.	38.
24.	42.
24.	44.
24.	36.
24.	39.
24.	41.
24.	40.
24.	38.
24.	39.
24.	37.
24.	41.
24.	33.
24.	33.
24.	31.
24.	39.
24.	34.
24.	42.
24.	34.

ajg 6.31

	24.					37.									
	24.					36.									
	24.					38.									
	24.					30.									
	24.					32.									
	24.					40.									
	24.					41.									
	24.					31.									
	24.					37.									
	24.					33.									
	24.					37.									
	24.					28.									
ASCORE															
60.	0.	0.	74.	45.	70.	0.	100.	86.	56.	64.	100.	31.	82.	60.	89.
62.	10.	9.	63.	18.	75.	57.	0.	2.	58.	48.	1.	23.	43.	43.	4.
100.	0.	4.	0.	9.	41.	26.	38.	0.	15.	28.	5.	14.	57.	33.	48.
0.	8.	44.	26.	29.	7.	68.	43.	78.	52.	42.	33.	58.	19.	74.	56.
14.	2.	0.	0.	41.	79.	47.	72.	24.	62.	21.	74.	54.	54.	45.	0.
60.	39.	11.	66.	25.	39.	80.	55.	57.	0.	15.	52.	65.	82.	1.	62.
9.	67.	26.	2.	54.	8.	54.	78.	61.	0.	71.	39.	37.	24.	35.	99.
29.	82.	69.	93.	68.	0.	52.	46.	16.	0.	48.	9.	25.	49.	51.	91.
0.	100.	60.	52.	87.	49.	75.	0.	8.	23.	97.	0.	10.	0.	10.	26.
10.	10.	34.	17.	23.	33.	17.	37.	34.	33.	10.	7.	100.	16.	33.	37.
100.	99.	10.	0.	16.	94.	18.	24.	81.	14.	23.	11.	52.	0.	76.	45.
71.	28.	100.	6.	26.	4.	2.	1.	10.	22.	48.	33.	21.	27.	26.	42.
4.	4.	67.	22.	21.	64.	29.	97.	71.	71.	51.	76.	82.	65.	11.	51.
4.	8.	79.	0.	26.	40.	91.	14.	4.	0.	98.	52.	97.	0.	13.	1.
43.	29.	59.	0.	47.	11.	32.	33.	100.	60.	34.	9.	0.	31.	53.	24.
5.	24.	24.	74.	33.	59.	65.	52.	24.	59.	70.	6.	81.	89.	22.	94.

app6.32

FIRST 100 STATES

1	7	7	9	5
12	11	9	5	2
13	4	13	6	11
6	16	4	6	4
7	12	1	10	9
4	7	8	14	4
13	11	9	6	4
7	5	7	9	5
1	13	6	2	11
6	11	11	2	1
11	9	4	15	2
16	11	9	5	10
9	6	2	13	14
14	14	14	4	1
3	11	8	2	1
11	9	16	12	11
9	7	11	8	14
4	11	2	3	6
2	6	4	16	4
1	6	7	8	14

SCORE	TSCORE
31.	45.
31.	41.
31.	40.
31.	39.
31.	35.

ASCORE

56.	0.	0.	63.	44.	69.	0.	100.	81.	56.	56.	96.	30.	82.	58.	88.
53.	9.	9.	63.	13.	75.	57.	0.	2.	56.	48.	1.	22.	34.	43.	2.
100.	0.	4.	0.	4.	39.	24.	38.	0.	12.	26.	5.	14.	57.	33.	48.
0.	5.	44.	23.	29.	7.	58.	41.	70.	50.	35.	28.	47.	0.	68.	56.
14.	0.	0.	0.	39.	79.	46.	65.	21.	54.	20.	73.	54.	54.	45.	0.
60.	30.	11.	54.	24.	38.	71.	55.	57.	0.	13.	52.	62.	81.	1.	59.
4.	66.	20.	0.	51.	7.	42.	67.	61.	0.	61.	30.	37.	24.	34.	99.
69.	78.	64.	90.	65.	0.	48.	41.	15.	0.	45.	7.	22.	24.	47.	90.
0.	99.	60.	37.	78.	41.	69.	0.	8.	22.	97.	0.	10.	0.	9.	24.
10.	9.	33.	17.	22.	33.	3.	36.	31.	33.	10.	6.	100.	16.	33.	37.
100.	98.	10.	0.	16.	89.	18.	0.	66.	14.	21.	11.	51.	0.	75.	45.
69.	27.	100.	6.	26.	4.	1.	1.	9.	22.	31.	33.	19.	27.	26.	42.
4.	3.	67.	21.	21.	51.	28.	96.	71.	71.	50.	76.	80.	64.	11.	49.
0.	7.	79.	0.	24.	38.	91.	14.	0.	0.	98.	48.	97.	0.	13.	1.
42.	27.	53.	0.	46.	11.	32.	28.	100.	59.	34.	9.	0.	31.	51.	24.
5.	24.	24.	74.	31.	56.	62.	51.	21.	59.	63.	6.	81.	89.	22.	94.

app 6.33

FIRST 100 STATES

3	14	9	3	14
3	15	10	13	16
2	11	2	1	5
6	4	11	9	7
8	4	7	7	3
15	1	11	8	11
11	2	1	6	4
15	8	14	13	13
4	8	5	5	11
9	4	8	4	11
6	4	11	6	4
10	7	5	6	5
12	3	14	3	5
14	4	13	11	1
3	11	6	7	8
4	11	9	7	11
6	7	7	3	10
13	6	9	5	7
12	11	16	15	3
9	14	5	7	3

SCORE 40. TSCORE 50.

40. 40.

ASCORE

55.	0.	0.	62.	43.	68.	0.	100.	80.	55.	54.	95.	29.	81.	58.	87.
51.	9.	9.	62.	12.	75.	57.	0.	2.	54.	48.	1.	21.	31.	43.	2.
100.	0.	3.	0.	3.	39.	23.	38.	0.	11.	25.	4.	14.	56.	32.	48.
0.	4.	44.	22.	28.	7.	55.	0.	67.	48.	33.	27.	43.	0.	64.	55.
13.	0.	0.	0.	38.	78.	45.	64.	21.	52.	20.	73.	53.	53.	45.	0.
60.	27.	10.	46.	24.	37.	70.	55.	56.	0.	12.	52.	62.	81.	0.	57.
3.	66.	18.	0.	50.	7.	37.	25.	60.	0.	59.	27.	37.	24.	34.	98.
29.	77.	63.	90.	65.	0.	48.	41.	15.	0.	45.	7.	22.	23.	47.	90.
0.	99.	60.	33.	75.	38.	66.	0.	7.	22.	96.	0.	10.	0.	9.	24.
9.	9.	32.	16.	22.	33.	1.	36.	26.	33.	10.	6.	100.	16.	32.	37.
100.	98.	10.	0.	15.	36.	17.	0.	61.	14.	20.	10.	49.	0.	75.	45.
68.	26.	100.	6.	26.	3.	1.	1.	9.	21.	27.	33.	19.	27.	26.	42.
4.	3.	66.	21.	21.	47.	28.	96.	71.	71.	49.	75.	80.	62.	10.	49.
0.	6.	78.	0.	22.	38.	91.	13.	0.	0.	98.	48.	97.	0.	13.	1.
42.	25.	50.	0.	46.	11.	32.	27.	100.	59.	34.	9.	0.	31.	50.	24.
5.	24.	23.	73.	30.	56.	60.	51.	21.	39.	60.	6.	81.	89.	22.	94.

app 6.3f

FIRST 100 STATES

9	6	16	2	5
8	4	9	2	6
8	16	11	13	12
14	2	12	1	3
7	12	1	12	3
1	12	11	9	10
7	9	14	12	2
1	8	3	15	8
3	7	5	6	10
7	3	11	8	13
9	6	4	10	7
16	11	1	8	5
12	5	13	6	4
9	4	4	13	2
4	7	8	6	4
1	9	4	13	12
10	2	6	16	13
8	16	14	4	10
13	16	5	7	13
6	13	10	5	13

SCORE 49. TSCORE 48.

ASCORE

55.	0.	0.	61.	42.	68.	0.	99.	80.	55.	54.	95.	29.	81.	58.	87.
51.	9.	9.	62.	12.	74.	57.	0.	2.	54.	47.	1.	21.	31.	43.	2.
99.	0.	3.	0.	3.	38.	23.	37.	0.	11.	24.	4.	14.	56.	32.	47.
0.	4.	44.	22.	28.	7.	54.	40.	66.	48.	33.	27.	43.	0.	64.	55.
13.	0.	0.	0.	37.	78.	44.	64.	20.	52.	20.	72.	53.	53.	45.	0.
60.	26.	10.	45.	24.	37.	69.	55.	56.	0.	12.	52.	61.	81.	0.	56.
3.	66.	18.	0.	49.	7.	36.	64.	60.	0.	58.	27.	36.	24.	34.	98.
29.	76.	63.	89.	65.	0.	47.	40.	15.	0.	44.	7.	22.	22.	47.	90.
0.	99.	59.	32.	75.	37.	66.	0.	7.	21.	95.	0.	10.	0.	9.	24.
9.	8.	32.	16.	22.	33.	0.	36.	26.	33.	9.	6.	100.	16.	32.	37.
99.	97.	10.	0.	15.	34.	17.	0.	60.	14.	20.	10.	49.	0.	75.	44.
67.	26.	100.	6.	26.	3.	1.	1.	9.	21.	27.	32.	19.	27.	26.	42.
4.	3.	66.	21.	21.	47.	28.	96.	71.	71.	49.	75.	80.	62.	10.	49.
0.	6.	78.	0.	22.	37.	90.	13.	0.	0.	98.	46.	97.	0.	13.	1.
42.	24.	50.	0.	46.	11.	32.	27.	100.	59.	34.	9.	0.	31.	50.	24.
5.	24.	23.	73.	30.	55.	60.	50.	21.	58.	59.	6.	81.	89.	22.	94.

app 6.35

FIRST 100 STATES

4	13	13	10	6
9	16	13	8	4
10	4	10	14	3
11	1	8	3	1
1	4	16	15	6
14	7	16	6	4
8	3	14	12	1
12	12	15	8	2
11	15	11	1	9
11	2	5	4	9
11	8	16	6	9
11	15	1	11	11
15	15	1	6	13
16	4	3	11	15
9	6	8	8	1
8	15	9	11	2
1	12	13	12	16
7	11	1	9	5
8	14	11	10	8
2	7	8	7	5

SCORE TSCORE

58. 61.

ASCORE

55. 0. 0. 61. 42. 68. 0. 99. 80. 54. 53. 95. 29. 81. 58. 87.
40. 9. 9. 62. 12. 74. 57. 0. 2. 54. 47. 0. 21. 31. 42. 2.
99. 0. 3. 0. 3. 38. 23. 37. 0. 11. 24. 4. 14. 56. 32. 47.
0. 4. 44. 32. 28. 7. 54. 40. 66. 48. 33. 27. 43. 0. 63. 55.
13. 0. 0. 0. 37. 78. 44. 64. 20. 52. 20. 72. 53. 53. 45. 0.
60. 26. 10. 45. 24. 37. 69. 55. 56. 0. 12. 52. 61. 81. 0. 56.
3. 66. 18. 0. 49. 7. 36. 63. 60. 0. 58. 27. 36. 24. 34. 98.
29. 76. 43. 89. 65. 0. 47. 40. 15. 0. 44. 7. 22. 22. 47. 90.
0. 99. 59. 32. 74. 37. 66. 0. 7. 21. 95. 0. 10. 0. 8. 24.
9. 8. 32. 16. 22. 32. 0. 35. 26. 33. 9. 6. 99. 16. 32. 37.
99. 97. 10. 0. 15. 84. 17. 0. 60. 14. 19. 10. 48. 0. 74. 44.
47. 26. 100. 6. 26. 3. 1. 1. 9. 21. 26. 32. 19. 27. 26. 42.
4. 3. 66. 21. 21. 46. 28. 96. 71. 71. 48. 75. 80. 62. 10. 49.
0. 6. 78. 0. 22. 37. 90. 13. 0. 0. 98. 47. 97. 0. 13. 1.
42. 24. 50. 0. 46. 11. 32. 27. 99. 59. 34. 9. 0. 31. 50. 24.
5. 24. 23. 73. 30. 55. 60. 50. 21. 58. 59. 6. 81. 89. 22. 94.

app 6.36

FIRST 100 STATES

16	10	13	10	11
1	16	2	6	14
11	1	5	12	3
1	8	7	2	15
15	9	3	1	8
11	16	14	3	1
12	3	1	12	3
1	5	12	3	16
14	12	3	1	7
2	7	16	3	1
10	13	13	13	10
13	12	16	3	1
12	3	1	1	10
6	14	11	13	10
13	4	15	9	2
11	1	1	12	3
1	10	13	16	4
3	1	12	3	1
9	2	7	16	16
10	6	16	14	4

SCORE	TSCORE
72.	65.
72.	69.

ASCORE

55.	0.	0.	61.	42.	68.	0.	100.	80.	55.	53.	95.	29.	81.	58.	87.
51.	9.	9.	62.	12.	74.	57.	0.	2.	54.	47.	0.	21.	31.	42.	2.
140.	0.	3.	0.	3.	38.	23.	37.	0.	11.	24.	4.	14.	56.	32.	47.
0.	4.	44.	22.	28.	7.	54.	40.	66.	48.	33.	27.	43.	0.	63.	55.
13.	0.	0.	0.	37.	78.	44.	64.	21.	52.	20.	72.	54.	53.	45.	0.
60.	26.	10.	45.	24.	37.	69.	55.	56.	0.	12.	52.	61.	81.	0.	56.
3.	66.	18.	0.	49.	7.	36.	63.	60.	0.	58.	27.	36.	24.	34.	98.
29.	76.	63.	89.	65.	0.	47.	40.	15.	0.	44.	7.	22.	22.	47.	90.
0.	99.	59.	32.	75.	37.	66.	0.	7.	21.	95.	0.	10.	0.	8.	24.
9.	8.	32.	16.	22.	32.	0.	35.	26.	33.	9.	6.	100.	16.	32.	37.
100.	97.	10.	0.	15.	84.	17.	0.	60.	14.	20.	10.	49.	0.	74.	44.
67.	26.	100.	6.	26.	3.	1.	1.	9.	21.	26.	32.	19.	27.	26.	42.
4.	3.	66.	21.	21.	46.	28.	96.	71.	71.	49.	75.	60.	62.	10.	49.
0.	6.	78.	0.	22.	37.	90.	13.	0.	0.	99.	48.	97.	0.	13.	1.
42.	24.	50.	0.	46.	11.	32.	27.	99.	59.	34.	9.	0.	31.	50.	24.
5.	24.	23.	73.	30.	55.	60.	50.	21.	58.	59.	6.	81.	89.	22.	94.

app 6.37

FIRST 100 STATES

15	9	3	14	13
10	13	3	7	16
14	11	15	9	2
7	16	14	13	5
15	9	3	14	13
5	12	3	6	14
13	9	2	6	8
4	16	14	13	10
13	15	9	3	16
14	11	1	14	13
4	10	13	11	1
14	11	13	10	13
3	16	2	12	3
1	12	15	9	7
15	14	11	1	8
16	14	3	1	14
11	2	15	9	11
1	16	14	6	14
13	16	12	3	1
9	7	16	14	3

SCORE	TSCORE
79.	73.
79.	70.
79.	76.

ASCORE

65.	0.	0.	62.	43.	69.	0.	100.	80.	55.	53.	96.	29.	82.	58.	87.
81.	9.	9.	62.	12.	75.	57.	0.	2.	54.	87.	1.	21.	31.	43.	2.
100.	0.	3.	0.	3.	38.	23.	37.	0.	11.	24.	4.	14.	56.	32.	48.
0.	4.	44.	22.	29.	7.	54.	40.	66.	48.	33.	27.	43.	0.	63.	55.
13.	0.	0.	0.	37.	78.	44.	64.	21.	52.	20.	73.	54.	53.	45.	0.
60.	26.	10.	45.	24.	37.	49.	55.	56.	0.	12.	53.	61.	82.	0.	56.
3.	66.	18.	0.	49.	7.	36.	63.	60.	0.	58.	27.	36.	24.	34.	99.
29.	76.	63.	89.	65.	0.	48.	40.	15.	0.	44.	7.	22.	22.	47.	91.
0.	99.	60.	32.	75.	37.	66.	0.	7.	21.	96.	0.	10.	0.	9.	24.
9.	8.	32.	16.	22.	32.	0.	36.	26.	33.	9.	6.	100.	16.	33.	37.
100.	98.	10.	0.	15.	84.	17.	0.	60.	14.	20.	10.	49.	0.	74.	44.
67.	26.	100.	6.	26.	3.	1.	1.	9.	21.	26.	32.	19.	27.	26.	42.
4.	3.	66.	21.	21.	46.	28.	96.	71.	72.	9.	75.	50.	62.	10.	50.
0.	6.	78.	0.	22.	37.	90.	13.	0.	0.	99.	46.	98.	0.	13.	1.
42.	24.	50.	0.	46.	11.	32.	27.	100.	59.	34.	9.	0.	31.	50.	24.
6.	25.	24.	73.	30.	55.	60.	50.	21.	59.	59.	6.	21.	91.	22.	94.

FIRST 100 STATES

5	12	3	1	12
3	1	16	14	13
3	1	7	4	5
13	3	1	12	3
1	8	13	3	1
16	14	13	3	1
5	12	3	1	6
14	13	3	1	6
14	13	3	1	16
14	13	3	1	12
3	1	12	3	1
16	14	13	3	1
5	12	3	1	13
3	1	9	3	1
14	13	3	1	14
13	3	1	16	14
13	3	1	14	13
3	1	16	14	13
3	1	8	16	14
13	3	1	16	14

SCORE 86. TSCORE 84.

Top only

BLANK PAGE

APPENDIX 7

PROGRAM FOR STOCHASTIC ADJUSTMENT APPLIED TO STATE TRANSITION COMPUTATION

```
      1  *
      2  C     EMC AMM 68-9-2
      3  C     STATE TRANSITION COMPUTATION
      4  C     ANALYSIS OF STOCHASTIC ADJUSTMENT
      5        DIMENSION ISCORE[16,16],  MSCORE[16,16],          N1[5], N2[5],
     6       1[HIST[21],DIS[16,16], AMEAN [100],AIMIT[16],ALPHA[16],ALPHA1[16],
     7       2 ATRIX[16,16],TTRIX[16,16],ASCORE[16,16]
      8        PAUSE 1
      9  C     READ INPUT DATA
     10        READ 350,IR
     11        READ 351, N1[1],N1[2],N1[3],N1[4],N1[5]
     12        READ 351,N2[1],N2[2], N2[3], N2[4],N2[5]
     13        READ 352, N3,N4, DELTA
     14        PAUSE2
     15        ACCEPT TAPE 353,[[ISCORE[I,J],J=1,16],I=1,16]
     16   353  FORMAT[ 16[I3,2X]]
     17        PAUSE3
     18        ACCEPT TAPE 354,[[ATRIX [I,J],J=1,16],I=1,16]
     19   354  FORMAT [ 16F4.2]
     20   350  FORMAT[I7]
     21   351  FORMAT [5I10]
     22   352  FORMAT[ 2I10,F20.10]
     23        DO 360 I=1,16
     24        DO 362 J=2,16
     25        K=J-1
     26        TTRIX[I,J]= ATRIX[I,J] -ATRIX[I,K]
     27   362  CONTINUE
     28        J=1
     29        TTRIX[I,1]= ATRIX[I,1]
     30   360  CONTINUE
     31  C
     32  C
     33        IF[ SENSE SWITCH 2] 510,511
     34   511  CONTINUE
     35        PRINT 364
     36   364  FORMAT[ 1H1,$INPUT MATRICES $,//,10X,$ ISCORE $,/]
     37        DO 370 I=1,16
     38        PRINT 361,[ ISCORE[I,J], J=1,16]
     39   361  FORMAT [10X,16I4]
     40   370  CONTINUE
     41        PRINT 367
     42   367  FORMAT [10X,$ TTRIX $,/]
     43        DO 372 I=1,16
     44        PRINT 363, [TTRIX[I,J],J=1,16]
     45   363  FORMAT [10X,16[F5.2]]
     46   372  CONTINUE
     47        PRINT 365
     48   365  FORMAT [1H1,10X, $ATRIX $,/]
     49        DO 371 I=1,16
     50        PRINT 363,[ ATRIX[I,J],J=1,16]
     51   371  CONTINUE
     52   510  CONTINUE
     53  C     COMPUTE LIMITING DISTRIBUTION [ALPHA]
```

app 7.2

```
      PRINT 500
500   FORMAT(////,10X,* ALPHA *,///)
      DO 300 K=1,16
      ALPHA(K) =1.0/16.
300   CONTINUE
307   DO 301 K=1,16
      AIMIT(K)=0.0
      ALPHA1(K) =0.0
      SUM =0.0
301   CONTINUE
      ERR=0.0
      DO 302 J=1,16
      DO 303 K=1,16
      ALPHA1(J) =ALPHA(K)*TTRIX(K,J)  + ALPHA1(J)
303   CONTINUE
      SUM = ALPHA1 (J) +SUM
302   CONTINUE
      DO 304 K=1,16
      ALPHA1(K)= ALPHA1(K)/ SUM
      ERR=(ALPHA1(K) -ALPHA (K))**2 + ERR
304   CONTINUE
      PRINT 309,( ALPHA1(K),K=1,16)
309   FORMAT (10X, 16(F4.2,2X))
      IF(ERR-.0001) 305,305,400
400   SUM =0.0
      DO 306 K=1,16
      ALPHA(K) =ALPHA(K) -(ALPHA(K)- ALPHA1(K))
      IF( ALPHA(K)) 600,601,601
600   ALPHA (K) =0.0
601   SUM =SUM + ALPHA(K)
306   CONTINUE
      DO 602 K=1,16
      ALPHA(K) = ALPHA (K)/ SUM
602   CONTINUE
      GO TO 307
305   DO 308 K=1,16
      AIMIT(K) = AIMIT(K) + ALPHA(K)
308   CONTINUE
      DO 401, I=1,16
      DO 402 J=1,16
      DIS(I,J) = ALPHA(I)*TTRIX(I,J)
402   CONTINUE
401   CONTINUE
      PRINT 501
501   FORMAT (1H1, 10X, * 10X DIS(I,J) *,///)
      DO 503 I=1,16
      PRINT 502, (DIS (I,J),J=1,16)
503   CONTINUE
502   FORMAT( 10X,16( 1PE5.2))
      III = 5**9
      SMALL = 1.0/(2**23-1)
C     COMPUTE THEORETICAL POPULATION, MEAN AND VARIANCE.
      POPM = 0.0
      POPVAR = 0.0
```

```
      108        DO 1 I=1,16
      109        DO 2 J=1,16                                    app 7.3
      110        POPM = DIS[I,J]*ISCORE[I,J] + POPM
      111        POPVAR =DIS[I,J]*[ ISCORE[I,J]**2] +POPVAR
      112      2 CONTINUE
      113      1 CONTINUE
      114        POPVAR = POPVAR -(POPM**2)
      115        PRINT 103, POPM,POPVAR
      116    103 FORMAT (1H1,10X,$STUDY OF STOCHASTIC ADJUSTMENTS$, //, 10X,
      117       1 $POPULATION MEAN=$,F4.0,$ POPULATION VARIANCE=$,F6.2]
      118    C
      119    C
      120        IF (SENSE SWITCH 4) 520, 521
      121    520 GO TO 355
      122    521 CONTINUE
      123    C
      124    C
      125        IF( SENSE SWITCH 3) 515,516
      126    516 CONTINUE
      127    C     SELECT SAMPLES FROM POPULATION
      128    C     SET SAMPLE SIZE
      129    C
      130    C
      131        IF (SENSE SWITCH 1) 5,6
      132      5 PAUSE
      133        READ 351, N1[1],N1[2],N1[3],N1[4],N1[5]
      134        READ 351,N2[1],N2[2], N2[3], N2[4],N2[5]
      135        READ 352, N3,N4, DELTA
      136      6 CONTINUE
      137    C     N1[L] = SAMPLE SIZE
      138    C     N2[L] = NUMBER OF SAMPLES
      139    C     N3= NUMBER OF DELTAS ADDED TO ISCORE
      140    C     N4= NUMBER OF ADJUSTMENTS
      141        DO 30 L=1,5
      142        D= 3. * SQRTF (POPVAR/N1[L])/ 10.0
      143        SAMM=0.0
      144        SAMVAR =0.0
      145        DO 50 K=1,21
      146        IHIST[K]=0
      147     50 CONTINUE
      148        DO 40 LL=1,N2[L]
      149    C     COMPUTE TRANSTATES
      150        SCORE = 0.0
      151        IR =IR*III
      152        RE=[IR*0.5]*SMALL +0.5
      153        DO 700 KK=1,16
      154        IF(AIMIT[KK] -RE] 700,702,702
      155    702 J=KK
      156        GO TO 701
      157    700 CONTINUE
      158    701 CONTINUE
      159        DO 10 K=1,N1[L]
      160        I=J
      161        IR = IR*III
```

```
      R = (IR+0.5) + SMALL + 0.5
      DO 20, J=1,16
      IF ( ATRIX(I,J) -R) 20,21,21
   21 SCORE    = SCORE    + ISCORE(I,J)
      GO TO 10
   20 CONTINUE
   10 CONTINUE
      SCORE    = SCORE    /N1(L)
C     COMPUTE MEAN AND VARIANCE
      SAMM = SAMM + SCORE
      SAMVAR = SAMVAR + (SCORE    )**2
C     COMPUTE HISTOGRAM
      DO 70 J=1,21
      IF(SCORE  -P0PM -D*(J-11.0))71,71,70
   71 IHIST(J)=IHIST(J)+1
      GO TO 60
   70 CONTINUE
   60 CONTINUE
   40 CONTINUE
      SAMVAR =(SAMVAR-(SAMM)**2/N2(L))/N2(L)
      SAMM=SAMM/N2(L)
      PRINT 100,SAMM,SAMVAR,D  , N1(L),N2(L)
  100 FORMAT(1H1,10X, $HISTOGRAM OF SAMPLE SCORES$,//,10X,$SAMPLE MEAN=$
     1, F8.2, 3X,$SAMPLE VARIANCE=$,F8.2,3X,$D=$,F8.2,/ ,
     210X, $N1=$,I10,3X,$N2=$,I10)
      DO 30 J=1,21
      D1=D*(J-11.) +P0PM
      PRINT 101, D1,IHIST(J)
  101 FORMAT(10X,F6.2,10X,I4)
   30 CONTINUE
  515 CONTINUE
C     COMPUTE EXPECTED AND EXPERIMENTAL CHANGE IN SCORE
C     COMPUTE THEORETICAL VALUES
      P0PV1=0.0
      FACTOR= DELTA*N3
      GAIN=0.0
      DO 210 I=1,16
      DO 221 J=1,16
      GAIN= DIS(I,J)**2+GAIN
      P0PV1=  DIS(I,J)*((ISCORE(I,J)+  FACTOR* DIS(I,J))**2) + P0PV1
  221 CONTINUE
  210 CONTINUE
      CP0PM= FACTOR*GAIN
      P0PM = P0PM + CP0PM
      P0PV1= P0PV1- P0PM**2
      CP0PV=P0PV1-P0PVAR
      PRINT200,GAIN,P0PM,CP0PM,P0PVAR,P0PV1,CP0PV
  200 FORMAT(1H1,10X,$STOCHASTIC ADJUSTMENT PROPERTIES$,///10X,$
     1THEORETICAL VALLES$,///,10X,$ GAIN=$,F8.6,3X,$P0PM=$,F8.2,3X,$
     2CP0PM=$,F8.2,//,10X,$ P0PVAR=$,F8.2,3X,$ P0PV1=$F8.2,3X,$CP0PV=$,
     3F8.2)
      PRINT 201, DELTA,N3,N4
  201 FORMAT(10X,$ MEAN AND VARIANCE AFTER ADJUSTMENT $,///,10X,$DELTA=$,
     1F6.2,3X,$N3=$,I4,3X,$N4=$,I4,//,10X,$ MEAN$,10X,$VARIANCE$)
```

app 7.2

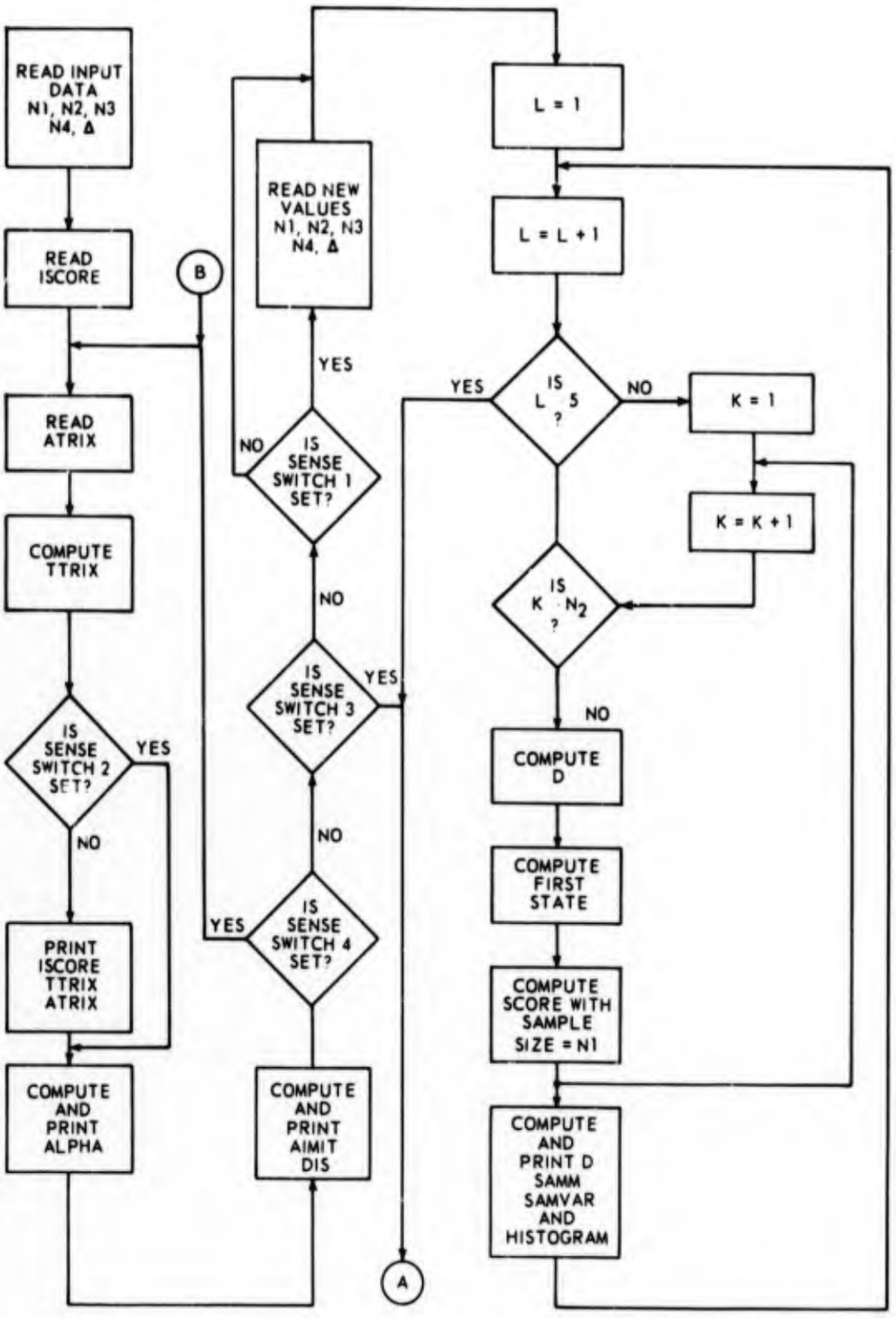
```
*   216  C      ADJ DELTA TO N3 SAMPLES OF MSCORE
*   217        DO 230 K2=1,N4
*   218        DO 620 I=1,16
*   219        DO 611 J=1,16
*   220        MSCORE (I,J)= ISCORE(I,J)
*   221    611 CONTINUE
*   222    620 CONTINUE
*   223        IR=IR*111
*   224        RE=(IR*0.5)*SMALL +0.5
*   225        DO 251 L=1,16
*   226        IF(AIMIT(L)-RE) 251,252,252
*   227    252 J=L
*   228        GO TO 253
*   229    251 CONTINUE
*   230    253 CONTINUE
*   231        DO 220 K=1,N3
*   232        I=J
*   233        IR=IR*111
*   234        RE=(IR*0.5)*SMALL+0.5
*   235        DO 230 J=1,16
*   236        IF(ATRIX(I,J)-RE) 230,222,222
*   237    222 MSCORE(I,J)= MSCORE(I,J) + DELTA
*   238        GO TO 220
*   239    230 CONTINUE
*   240    220 CONTINUE
*   241  C      COMPUTE THEORETICAL MEAN AND VARIANCE OF NEW POPULATION
*   242        POPM=0.0
*   243        POPVAR=0.0
*   244        DO 211 I=1,16
*   245        DO 212 J=1,16
*   246        POPM = DIS(I,J)* MSCORE (I,J)+POPM
*   247        POPVAR =POPVAR +DIS(I,J) *((MSCORE(I,J)**2)
*   248    212 CONTINUE
*   249    211 CONTINUE
*   250        POPVAR =POPVAR- POPM**2
*   251        PRINT 202,POPM,POPVAR
*   252    202 FORMAT (10X,F8.4, 10X,F10.3)
*   253  C      COMPUTE EXPERIMENTAL MEAN AND VARIANCE OF NEW POPULATION MEANS
*   254        AMEAN(K2)=POPM
*   255    250 CONTINUE
*   256        POPM =0.0
*   257        POPVAR=0.0
*   258        DO 215 K=1,N4
*   259        POPM=POPM+AMEAN(K)
*   260        POPVAR= POPVAR +(AMEAN(K)**2)
*   261    215 CONTINUE
*   262        POPVAR= (POPVAR-(POPM**2)/N4)/N4
*   263        POPM =POPM/N4
*   264        PRINT 203, POPM ,POPVAR
*   265    203 FORMAT(///,10X,'MEAN AND VARIANCE OF POPULATION MEANS AFTER
*   266       1 ADJUSTMENT $',///,10X,' MEAN=',F6.2,3X,' VARIANCE =',F6.2)
*   267        GOTO 355
*   268  *     END
```

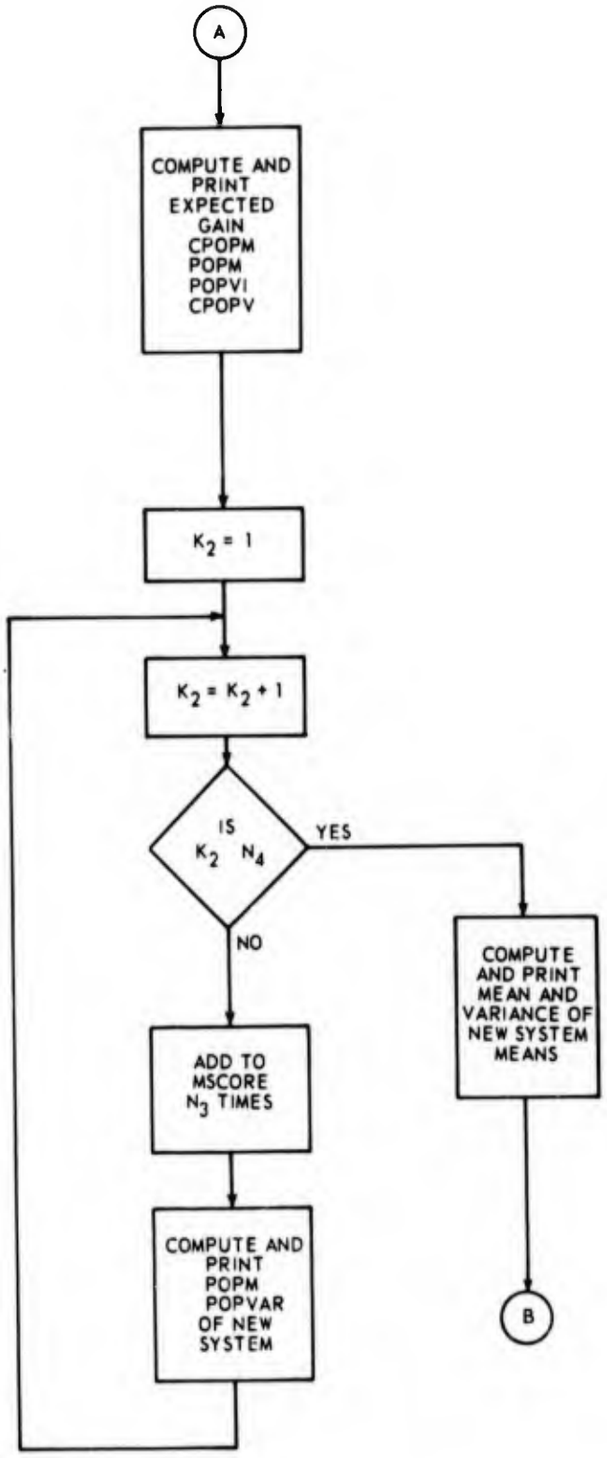
PROGRAM ALLOCATION

00011 ISCORE	00411 MSCORE	01011 N1	01016 N2
01023 HIST	01050 DIS	02050 AMEAN	02360 AIMIT
02420 ALPHA	02460 ALPHA1	02520 AIRIX	03520 IIRIX
04520 ASCORE	05520 I9	05521 N3	05522 N4
05523 I	05524 J	05525 K	05526 III
05527 L	05530 LL	05531 KK	05532 K2
05533 DELTA	05535 SUM	05537 ERR	05541 SMALL
05543 POP	05545 POPVAR	05547 D	05551 SAMM
05553 SAMVAR	05555 SCORE	05557 RE	05561 R
05563 D1	05565 POPV1	05567 FACTOR	05571 GAIN
05573 CPOPM	05575 CPOPV		

SUBPROGRAMS REQUIRED

SQRTF


READ INPUT DATA N1, N2, N3 N4, Δ
READ ISCORE
B
READ ATRIX
COMPUTE TTRIX
IS SENSE SWITCH 2 SET?
YES
NO
PRINT ISCORE TTRIX ATRIX
COMPUTE AND PRINT ALPHA
READ NEW VALUES N1, N2, N3 N4, Δ
YES
IS SENSE SWITCH 1 SET?
NO
NO
IS SENSE SWITCH 3 SET?
YES
NO
IS SENSE SWITCH 4 SET?
YES
COMPUTE AND PRINT AIMIT DIS
A
L = 1
L = L + 1
YES
IS L 5 ?
NO
K = 1
K = K + 1
IS K N2 ?
NO
COMPUTE D
COMPUTE FIRST STATE
COMPUTE SCORE WITH SAMPLE SIZE = N1
COMPUTE AND PRINT D SAMM SAMVAR AND HISTOGRAM


A
COMPUTE AND PRINT EXPECTED GAIN CPOPM POPM POPVI CPOPV
$K_2 = 1$
$K_2 = K_2 + 1$
IS K_2 N_4
YES
NO
COMPUTE AND PRINT MEAN AND VARIANCE OF NEW SYSTEM MEANS
ADD TO MSCORE N_3 TIMES
COMPUTE AND PRINT POPM POPVAR OF NEW SYSTEM
B

APPENDIX 8

HISTOGRAM OF SAMPLE SCORES WITH THE INITIAL STATE DISTRIBUTED AS ALPHA

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 13.33 SAMPLE VARIANCE= 275.39 D= 5.72
N1= 1 N2= 1000

-41.94	0
-36.22	0
-30.51	0
-24.79	0
-19.07	0
-13.35	0
-7.63	0
-1.91	0
3.81	249
9.53	364
15.25	109
20.97	91
26.69	50
32.40	25
38.12	36
43.84	17
49.56	6
55.28	5
61.00	13
66.72	12
72.44	3

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 15.66 SAMPLE VARIANCE= 47.96 D= 1.81
N1= 10 N2= 100

-2.84	0
-1.03	0
0.78	0
2.59	0
4.40	1
6.20	4
8.01	6
9.82	10
11.63	8
13.44	11
15.25	18
17.06	9
18.86	6
20.67	6
22.48	3
24.29	7
26.10	2
27.91	3
29.72	4
31.52	0
33.33	1

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 14.39 SAMPLE VARIANCE= 23.73 D= 1.28
N1= 2[illegible] N2= 100

2.46	[illegible]
3.74	[illegible]
5.02	[illegible]
6.30	2
7.57	3
8.85	6
10.13	[illegible]
11.41	12
12.69	11
13.97	11
15.25	10
16.53	[illegible]
17.80	6
19.08	7
20.36	4
21.64	[illegible]
22.92	3
24.20	[illegible]
25.48	3
26.76	[illegible]
28.04	0

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 15.01 SAMPLE VARIANCE= 10.16 D= 0.81
N1= 5[illegible] N2= 100

7.16	[illegible]
7.97	[illegible]
8.78	1
9.59	1
10.39	2
11.20	5
12.01	6
12.82	13
13.63	9
14.44	7
15.25	15
16.06	[illegible]
16.86	10
17.67	8
18.48	6
19.29	[illegible]
20.10	3
20.91	[illegible]
21.72	[illegible]
22.53	[illegible]
23.34	2

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN=	14.80	SAMPLE VARIANCE=	3.49	D=	0.57
N1= 100	N2= 100				
9.53	0				
10.10	1				
10.67	0				
11.24	3				
11.82	2				
12.39	4				
12.96	8				
13.53	4				
14.10	13				
14.68	13				
15.25	13				
15.82	9				
16.39	8				
16.96	9				
17.53	6				
18.11	4				
18.68	2				
19.25	0				
19.82	1				
20.39	0				
20.97	0				

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN=	14.73	SAMPLE VARIANCE=	0.39	D=	0.26
N1= 500	N2= 5				
12.69	0				
12.95	0				
13.20	0				
13.46	0				
13.71	1				
13.97	0				
14.22	0				
14.48	0				
14.74	1				
14.99	1				
15.25	1				
15.50	1				
15.76	0				
16.01	0				
16.27	0				
16.53	0				
16.78	0				
17.04	0				
17.29	0				
17.55	0				
17.80	0				

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 15.23 SAMPLE VARIANCE= 0.37 D= 0.18
N1= 1000 N2= 5

13.44	0
13.62	0
13.80	0
13.98	0
14.16	0
14.34	0
14.52	1
14.70	1
14.89	0
15.07	0
15.25	1
15.43	0
15.61	0
15.79	0
15.97	1
16.15	1
16.33	0
16.51	0
16.69	0
16.88	0
17.06	0

APPENDIX 9

HISTOGRAM OF SAMPLE SCORES WITH THE INITIAL STATE EQUAL TO STATE 1

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 13.30 SAMPLE VARIANCE= 33.11 D= 1.81

N1= 10 N2= 100

-2.84	0
-1.03	0
0.78	0
2.59	0
4.40	0
6.20	11
8.01	12
9.82	12
11.63	9
13.44	9
15.25	3
17.06	11
18.86	11
20.67	7
22.48	3
24.29	1
26.10	3
27.91	0
29.72	0
31.52	2
33.33	0

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 2.46 SAMPLE VARIANCE= 13.62 D= 5.72

N1= 1 N2= 1000

-41.94	0
-36.22	0
-30.51	0
-24.79	0
-19.07	0
-13.35	0
-7.63	0
-1.91	0
3.81	984
9.53	0
15.25	0
20.97	0
26.69	7
32.40	0
38.12	9
43.84	0
49.56	0
55.28	0
61.00	0
66.72	0
72.44	0

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 15.03 SAMPLE VARIANCE= 8.27 D= 0.57
N1= 100 N2= 10

9.53	0
10.10	0
10.67	0
11.24	1
11.82	0
12.39	1
12.96	1
13.53	1
14.10	0
14.68	1
15.25	1
15.82	0
16.39	2
16.96	0
17.53	0
18.11	0
18.68	0
19.25	1
19.82	0
20.39	0
20.97	1

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 15.37 SAMPLE VARIANCE= 0.69 D= 0.26
N1= 500 N2= 5

12.69	0
12.95	0
13.20	0
13.46	0
13.71	0
13.97	0
14.22	1
14.48	0
14.74	1
14.99	0
15.25	0
15.50	0
15.76	1
16.01	1
16.27	0
16.53	1
16.78	0
17.04	0
17.29	0
17.55	0
17.80	0

HISTOGRAM OF SAMPLE SCORES

SAMPLE MEAN= 14.82 SAMPLE VARIANCE= 0.32 D= 0.18

N1= 1000 N2= 5

13.44	0
13.62	0
13.80	0
13.98	0
14.16	1
14.34	0
14.52	0
14.70	1
14.89	2
15.07	0
15.25	0
15.43	0
15.61	0
15.79	0
15.97	1
16.15	0
16.33	0
16.51	0
16.69	0
16.88	0
17.06	0

APPENDIX 10

STATISTICS FOR STOCHASTIC ADJUSTMENT PROCESS

STOCHASTIC ADJUSTMENT PROPERTIES

THEORETICAL VALUES

GAIN=0.035745 PRPM= 18.82 CPRPM= 3.57

PRPVAR= 363.42 PRPV1= 299.38 CPRPV= =64.04

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
18.9018	298.965
18.2266	315.771
18.5807	303.531
18.4136	310.612
19.2306	299.028
19.5466	289.124
19.0349	303.054
18.3924	309.857
18.6847	301.443
19.1703	299.242

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 18.82 VARIANCE = 0.16

THEORETICAL VALUES

GAIN=0.016196 PRPM= 26.17 CPRPM= 1.62

PRPVAR= 428.97 PRPV1= 397.37 CPRPV= =31.61

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
25.9680	399.879
26.2905	392.267
26.0771	404.362
26.2552	397.551
26.1939	395.634
26.0871	400.901
25.9125	402.654
25.9116	407.573
25.9832	403.979
26.0514	404.433

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 26.07 VARIANCE = 0.01

STOCHASTIC ADJUSTMENT PROPERTIES

THEORETICAL VALUES

GAIN=0.007415 POPM= 40.68 CPOPM= 0.74

POPVAR= 689.58 POPV1= 679.64 CPOPV= -9.94

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
40.6711	678.180
40.6544	678.358
40.6596	679.408
40.6917	677.009
40.7388	676.758
40.5916	682.536
40.7602	676.260
40.6331	680.483
40.7021	677.955
40.7142	678.959

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 40.68 VARIANCE = 0.00

THEORETICAL VALUES

GAIN=0.011101 POPM= 32.13 CPOPM= 1.11

POPVAR= 560.93 POPV1= 539.14 CPOPV= -21.79

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
32.2929	530.170
32.1644	529.027
32.1515	540.556
32.2131	538.393
32.0759	548.141
32.0790	541.639
32.2572	534.069
32.0657	538.499
31.9388	542.195
31.9195	544.279

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 32.12 VARIANCE = 0.01

STOCHASTIC ADJUSTMENT PROPERTIES

THEORETICAL VALUES

GAIN=0.007630 POPM= 59.87 CPOPM= 0.76

POPVAR= 626.97 POPV1= 638.50 CPOPV= 11.54

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
59.8692	636.867
59.8847	637.232
59.8500	635.494
59.8279	633.145
59.8183	634.661
59.8224	637.445
59.8597	639.392
59.8643	643.022
59.8511	634.416
59.9982	639.497

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 59.86 VARIANCE = 0.00

THEORETICAL VALUES

GAIN=0.005665 POPM= 49.86 CPOPM= 0.57

POPVAR= 752.01 POPV1= 752.65 CPOPV= 0.64

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
49.8777	754.571
49.8615	756.912
49.8813	754.046
49.8520	755.895
49.8263	752.744
49.8570	751.428
49.8357	750.218
49.8274	755.404
49.8140	756.119
49.8606	751.241

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 49.85 VARIANCE = 0.00

STOCHASTIC ADJUSTMENT PROPERTIES

THEORETICAL VALUES

GAIN=0.019932 PRPM= 74.30 CPRPM= 1.99

PRPVAR= 523.79 PRPV1= 582.81 CPRPV= 59.02

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
74.0206	571.781
73.9167	563.897
74.7776	611.492
74.2856	579.969
74.2360	579.852
74.3068	587.278
74.2834	582.546
74.4257	584.765
74.1484	570.932
74.4442	594.650

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 74.28 VARIANCE = 0.05

THEORETICAL VALUES

GAIN=0.022737 PRPM= 80.33 CPRPM= 2.27

PRPVAR= 405.18 PRPV1= 458.52 CPRPV= 53.34

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
80.5855	469.261
80.2692	461.265
80.6588	474.262
80.5299	471.983
80.2708	456.506
80.4617	472.019
80.4267	466.932
80.2505	459.777
80.1876	456.937
80.2493	457.080

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 80.39 VARIANCE = 0.02

STOCHASTIC ADJUSTMENT PROPERTIES

THEORETICAL VALUES

GAIN=0.119166 POPM= 98.64 CPOPM= 11.92

POPVAR= 290.91 POPV1= 516.41 CPOPV= 225.50

MEAN AND VARIANCE AFTER ADJUSTMENT

DELTA= 1.00 N3= 100 N4= 10

MEAN	VARIANCE
98.4706	516.700
97.0859	465.701
99.8393	531.902
97.7180	496.639
98.8847	528.149
99.3610	544.335
97.9901	502.470
99.8798	531.599
99.2787	524.227
99.3392	530.043

MEAN AND VARIANCE OF POPULATION MEANS AFTER ADJUSTMENT

MEAN= 98.78 VARIANCE = 0.80

APPENDIX 11

PROGRAMS FOR REDUCED SCORE PREDICTION VARIANCE IN THE PRESENCE OF OBSERVER NOISE

```
▲J88.
▲ASSIGN S=MT0,SI=CR,B8=MT1,L8=LP.
▲FORTRAN SI,L0,B8.
*     1  C      EMC AMM 68-11-2
*     2  C      STATE TRANSITION COMPUTATION
*     3  C      PART II  DATA GENERATION
*     4  C      TRAINING WITH NOISE ON THE INPUT
*     5  C      READ INPUT DATA
*     6         DIMENSION ATRIX(16,16),ISCORE(16,16),ISTATE(600),
*     7        1ITRIX2(16,16),ASCORE(16,16)  ,ICOUNT(16,16)    ,
*     8        2ALPHA(16), AIMIT(16), ALPHA1(16), DIS(16,16), ERRORM(10),
*     9        3 ERRORV(10) ,EM(10), ERRM(10), ERRV(10)
*    10         READ 100,(IR,MRUN)
*    11     100 FORMAT (2I7)
*    12         PRINT 115,(IR,MRUN)
*    13     115 FORMAT (1H1,10X,2(  I7,2X))
*    14  C      INITIAL CONDITIONS
*    15         MM =0
*    16         KTEST =0
*    17         ITEST =1
*    18         MTEST =0
*    19         III = 5**9
*    20         SMALL = 1./(2**23-1)
*    21  C      INPUT CONTROL
*    22         PAUSE 1
*    23  C
*    24  C
*    25         IF( SENSE SWITCH2) 305,257
*    26     257 IF(SENSE SWITCH 3)255,256
*    27     255 ACCEPT TAPE 303,((ASCORE(I,J),J=1,16),I=1,16)
*    28         GO TO 305
*    29  C
*    30  C
*    31     256 IF (SENSE SWITCH 4) 304,306
*    32     304 READ 303,((ASCORE(I,J),J=1,16),I=1,16)
*    33     303 FORMAT(16F4.0)
*    34         GO TO 305
*    35     306 DO 2 I=1,16
*    36         DO 3 J=1,16
*    37         ASCORE(I,J) = 50.0
*    38       3 CONTINUE
*    39       2 CONTINUE
*    40         DO 4500 K=1,10
*    41         EM(K) =0.
*    42         ERRORM(K) =0.
*    43         ERRORV(K) =0.
*    44    4500 CONTINUE
*    45         AERR =0.
*    46         AE =0.
*    47         AERRS =0.
*    48     305 PAUSE 2
*    49         ACCEPT TAPE 102, ((ISCORE(I,J) , J=1,16), I=1,16)
*    50     102 FORMAT (16(I3,2X))
```

```
      51          PAUSE 3
      52       11 CONTINUE
      53          M = 0
      54          IF(SENSE SWITCH 1) 210,211
      55      210 PAUSE 4
      56          READ 400, ITEST, JTEST,NN, BNOISE,DEV
      57      400 FORMAT( 3I10,2F20.10)
      58          PRINT 401,( ITEST, JTEST , NN, BNOISE, DEV )
      59      401 FORMAT (10X,3(I10,2X),2(F10.2,2X))
      60      211 MTEST =MTEST +1
      61          IF (ITEST-2) 212,213,214
      62      212 IF( MTEST-17)215,215,216
      63      216 MTEST=1
      64          REWIND 5
      65      215 READ INPUT TAPE 5, 402, KTEST
      66      402 FORMAT(I3)
      67          DO 217,I=1,16
      68          READ INPUT TAPE 5,403,(ATRIX(I,J),J=1,16)
      69      217 CONTINUE
      70      403 FORMAT (16F5.3)
      71          GO TO 219
      72      213 IF(KTEST-JTEST) 218,219,218
      73      218 REWIND 5
      74      221 READ INPUT TAPE 5,402, KTEST
      75          DO 220,I=1,16
      76          READ INPUT TAPE 5, 403,( ATRIX(I,J),J=1,16)
      77      220 CONTINUE
      78          IF (KTEST-JTEST) 221,219,219
      79    C     RANDOM INPUT TEST
      80      214 IR=IR*111
      81          R=((IR*0.5)*SMALL+0.5)*100.
      82          REWIND 5
      83      223 READ INPUT TAPE 5,402, KTEST
      84          DO 222,I=1,16
      85          READ INPUT TAPE 5,403,(ATRIX(I,J),J=2,16)
      86      222 CONTINUE
      87          IF( KTEST-R) 223,219,219
      88      219 CONTINUE
      89       41 M=M+1
      90    C     COMPUTE SEQUENCE OF STATES
      91          SCORE = 0.
      92          J=1
      93          DO 10, K=1,600
      94          I=J
      95          IR = IR*111
      96          R= (IR*0.5)*SMALL+0.5
      97          DO 20 J=1,16
      98          IF(ATRIX(I,J)-R) 20,21,21
      99       21 ISTATE(K)=J
     100          SCORE =SCORE+ISCORE(I,J)
     101          GO TO 10
     102       20 CONTINUE
     103       10 CONTINUE
     104          SCORE = SCORE/600.
```

```
C     PRINT OUT 100 STATES IF SENSE SWITCH 2 IS SET
C
C
      IF (SENSE SWITCH 2) 30,31
   30 PRINT 110
  110 FORMAT(1H1,10X,$FIRST 100 STATES $)
      DO 15, J=1,100,5
      K=J+4
      PRINT 111,(ISTATE(I),I=J,K)
  111 FORMAT(10X,5(I10))
   15 CONTINUE
   31 CONTINUE
C     ADD NOISE TO SCORE
      RA = 0.0
      DO 410 , K=1,12
      IR=IR*111
      R=IR*SMALL
      RA = RA + R
  410 CONTINUE
      SCOREN = SCORE + RA*BNOISE
      IF( SCOREN - 100.) 224,224,225
  225 SCOREN=100.
  224 IF( SCOREN) 226,227,227
  226 SCOREN =0.
  227 CONTINUE
      PART III DATA ANALYSIS + SCORE PREDICTION
      COUNT TRANSITIONS
      DO 12 I=1,16
      DO 22 J=1,16
      ICOUNT(I,J)=0
   22 CONTINUE
   12 CONTINUE
      J = 1
      DO 32 K=1,600
      I=J
      J = ISTATE(K)
      ICOUNT(I,J)=ICOUNT(I,J) +1
   32 CONTINUE
C     CONVERT TO TRANSITION MATRIX
      DO 40 I= 1,16
      SUM = 0.
      DO 50 J= 1,16
      SUM = SUM +ICOUNT(I,J)
   50 CONTINUE
      DO 60 J = 1,16
      TTRIX2(I,J) =ICOUNT(I,J)/SUM
   60 CONTINUE
   40 CONTINUE
C     COMPUTE ALPHA
      IF(SENSE SWITCH 2) 228,235
  228 PRINT 500
  500 FORMAT(///,10X,$ALPHAS)
  235 CONTINUE
      DO 4000 I=1,16
```

appen

```
      159          ALPHA(I) =1.0/16
      160    4000 CONTINUE
      161    5000 CONTINUE
      162          DO 231 K=1,16
      163          AIMIT(K) =0.0
      164          ALPHA1(K)=0.0
      165          SUM=0.0
      166      231 CONTINUE
      167          ERR=0.0
      168          DO 232 J=1,16
      169          DO 233 K=1,16
      170          ALPHA1(J)=ALPHA(K)*TTRIX2(K,J)+ ALPHA1(J)
      171      233 CONTINUE
      172          SUM = ALPHA1(J) + SUM
      173      232 CONTINUE
      174          DO 234 K=1,16
      175          ALPHA1(K)= ALPHA1(K)/ SUM
      176          ERR=(ALPHA1(K)-ALPHA(K))**2+ERR
      177      234 CONTINUE
      178          IF(SENSE SWITCH 2) 690,236
      179      690 PRINT 237,( ALPHA1(K),K=1,16 )
      180      237 FORMAT( 10X,16(F4.2,2X)   )
      181      236 IF(ERR-.0001) 238,238,601
      182      601 SUM=0.0
      183          DO 340 K=1,16
      184          ALPHA(K)= ALPHA1(K)
      185          IF(ALPHA(K)) 341,342,342
      186      341 ALPHA(K)=0.0
      187      342 SUM =SUM+ ALPHA(K)
      188      340 CONTINUE
      189          DO 603 K=1,16
      190          ALPHA (K)=ALPHA(K)/ SUM
      191      603 CONTINUE
      192          GO TO 5000
      193      238 DO 239 K=1,16
      194          AIMIT(K)=AIMIT(K)+ ALPHA(K)
      195      239 CONTINUE
      196          DO 240 I=1,16
      197          DO 241J=1,16
      198          DIS(I,J)= ALPHA(I)*TTRIX2(I,J)
      199      241 CONTINUE
      200      240 CONTINUE
      201          COMPUTE PREDICTED SCORE
      202          P0PM =0.0
      203          DO 242 I=1,16
      204          DO 243 J=1,16
      205          P0PM =DIS(I,J)*ASCORE(I,J) +P0PM
      206      243 CONTINUE
      207      242 CONTINUE
      208          AERR =AERR + SCORE -P0PM
      209          AE = AE +1.
      210          AERRS = AERRS +( SCORE -P0PM)**2
      211          AMEAN = AERR/ AE
      212          VAR =( AE*AERRS-AERR**2)/(AE**2)
```

```
C       UPDATE ERROR MEMORY
        DO 245 K=1,10
        IF(10*K- P0PM)  245,602,602
  602 EM(K) =EM(K) +1.0
        ERR0RM(K) = ERR0RM(K) + SC0REN -P0PM
        ERR0RV(K) = ERR0RV(K) +(P0PM-SC0REN)**2
        KK=K
        GO TO 249
  245 CONTINUE
    C   COMPUTE MEAN AND VARIANCE
  249 DO 246 K=1,10
        ERRM(K) = ERR0RM(K)/EM(K)
        ERRV(K) =( EM(K) *ERR0RV(K)- ERR0RM(K)**2)/(EM(K)**2)
  246 CONTINUE
    C   CONTINUE
    C   COMPUTE INTRINSIC GAIN
        GAIN =0.0
        DO 247 I=1,16
        DO 248 J=1,16
        GAIN =DIS(I,J)**2 +GAIN
  248 CONTINUE
  247 CONTINUE
        FACTOR =  DEV/( SQRT(ERRV(KK)) +0.1) +ABS( ERRM (KK))/NN
        IF( FACTOR - 1.) 3000,3000,3001
 3001 FACTOR =1.
 3000 CONTINUE
        DO 250 I=1,16
        DO 251 J=1,16
        ASCORE (I,J) =ASCORE (I,J) +(DIS(I,J)*FACTOR*(SCOREN -P0PM))/GAIN
        IF( ASCORE(I,J)) 2000,2001,2001
 2000 ASCORE(I,J) =0.0
 2001 IF (ASCORE(I,J)-99.) 2002,2002,2003
 2003 ASCORE(I,J) =99.
 2002 CONTINUE
  251 CONTINUE
  250 CONTINUE
    C   PRINT SCORES
        IF(SENSE SWITCH 4) 252,253
  252 PRINT 254,' ',KK,ERRM(KK),ERRV(KK),FACTOR,SCORE,SCOREN,P0PM
     1 AMEAN, VAR
  254 FORMAT(    /,10X,2(I3,2X), 8(E11.4,2X) )
        GO TO 600
  253 PRINT 244, SCORE,SCOREN,P0PM
  244 FORMAT(1H1,10X,$ TRUE SCORE =$,F5.0,5X,$ TRUE SCORE + NOISE =$,
     1 F5.0,5X,$ PREDICTED SCORE =$, F5.0)
  600 CONTINUE
  200 IF(SENSE SWITCH 3) 201,202
    C   PRINT ASCORE
  201 CONTINUE
        PRINT 1303
 1303 FORMAT(10X,$ASCORE$)
        DO 161=1,16
        PRINT 113,(ASCORE(I,J),J=1,16)
  113 FORMAT( 10X,16(F4.0))
```

app 11.6

```
    267      16 CONTINUE
    268  C
    269  C
    270          IF(SENSE SWITCH1) 302,202
    271      302 PUNCH TAPE 303,((ASCORE(I,J),J=1,16),I=1,16)
    272      202 IF(M-MRUN) 41,11,11
    273  *       END
```

PROGRAM ALLOCATION

00010 ATRIX	01010 ISCORE	01410 ISTATE	02540 ITRIX2
03540 ASCORE	04540 ICOUNT	05140 ALPHA	05200 AIMIT
05240 ALPHA1	05300 DIS	06300 ERRORM	06324 ERRORV
06350 EM	06374 ERRM	06420 ERRV	06444 IR
06445 MRUN	06446 MM	06447 KTEST	06450 ITEST
06451 MTEST	06452 III	06453 I	06454 J
06455 K	06456 M	06457 JTEST	06460 NN
06461 KK	06462 SMALL	06464 AERR	06466 AE
06470 AERRS	06472 BNOISE	06474 DEV	06476 R
06500 SCORE	06502 RA	06504 SCOREN	06506 SUM
06510 ERR	06512 POPM	06514 AMEAN	06516 VAR
06520 GAIN	06522 FACTOR		

SUBPROGRAMS REQUIRED

SQRT ABS

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APPENDIX 12

PROGRAM FOR ADAPTIVE GENERATION OF TRANSITION AND SCORE MATRICES FOR CONTROLLED SCORE INCREMENTS

```
$JOB.
$ASSIGN S=MTO, SI=CR,LO=LP, BO=MT1.
$FORTRAN SI,LO,BO.
*      1  *
*      2  C      EMC AMM 68-10/7
*      3  C      STATE TRANSITION COMPUTATION
*      4  C      PART IA ADAPTIVE PROGRAM FOR GENERATING STATE TRANSITIONS
*      5         DIMENSION  TTRIX(16,16),ATRIX(16,16),ISCORE(16,16),R(16)
*      6        1          TTRIX1(16,16),ATRIX1(16,16),ISTATE(300)
*      7         READ 100, IR
*      8         PRINT 110, IR
*      9     110 FORMAT (1H1,10X,$ADAPTIVE PROGRAM FOR GENERATING STATE TRANSITIONS
*     10        1   $,//,20X,$ IR=$,I7)
*     11     100 FORMAT (I7)
*     12  C      FORM TTRIX AND ATRIX
*     13         III = 5**9
*     14         SMALL = 1./(2**23-1)
*     15         DO 10, I=1,16
*     16         SUM = 0.
*     17         DO 20, J=1,16
*     18         IR = IR*III
*     19         R(J) = (IR*0.5) * SMALL + 0.5
*     20         SUM = SUM + R(J)
*     21         ATRIX(I,J) = SUM
*     22     20  CONTINUE
*     23         DO 30, J=1,16
*     24         TTRIX(I,J) = R(J)/SUM
*     25         ATRIX(I,J) = ATRIX(I,J)/SUM
*     26      30 CONTINUE
*     27      10 CONTINUE
*     28         PAUSE 1
*     29         ACCEPT TAPE 250,((ISCORE(I,J),J=1,16),I=1,16)
*     30     250 FORMAT (16(13,2X))
*     31  C      PRINT ARRAYS
*     32         PRINT 105
*     33         DO 15, I=1,16
*     34         PRINT 101,(TTRIX(I,J),J=1,16)
*     35      15 CONTINUE
*     36         PRINT 106
*     37         DO 16 I=1,16
*     38         PRINT 101,(ATRIX(I,J),J=1,16)
*     39      16 CONTINUE
*     40         PRINT 107
*     41         DO 17,I=1,16
*     42         PRINT 103, (ISCORE(I,J), J=1,16)
*     43      17 CONTINUE
*     44     105 FORMAT (1H1, 10X,$ TRANSITION MATRIX $,//)
*     45     101 FORMAT (10X,16(F4.2,1X))
*     46     106 FORMAT (//,10X,$ ACCUMULATIVE MATRIX $,//)
*     47     107 FORMAT (1H1,10X,$INCREMENTAL SCORES$,//)
*     48     103 FORMAT (10X,16(I3,2X))
*     49  C      COMPUTE SCORE FOR 300 STATE TRANSITIONS
*     50         KTEST =5
```

```
      9 KTEST =KTEST +5
        PRINT 121,KTEST
        DO 80, I=1,16
        DO 81, J=1,16
        TTRIX1[I,J] = TTRIX[I,J]
        ATRIX1[I,J]= ATRIX[I,J]
     81 CONTINUE
     80 CONTINUE
     85 J=1
        DO 60, K=1,300
        I=J
        IR = IR*111
        RE = [IR*0.5]*SMALL + 0.5
        DO 70, J=1,16
        IF [ATRIX1[I,J] -RE] 70,62,62
     62 ISTATE[K] = J
        SCORE = SCORE + ISCORE[I,J]
        GO TO 60
     70 CONTINUE
     60 CONTINUE
        SCORE = SCORE/300.0
C       SCORE TEST
        IF [KTEST + 3.0 -SCORE] 75,76,76
     76 IF [KTEST- 3.0-SCORE] 77,77,78
     77 GO TO 8
     75 L = -1
        GO TO 79
     78 L = 1
        GO TO 79
C       ADJUST TTRIX AND ATRIX
     79 PRINT 120, [SCORE]
        J=1
        DO 82,K=1,300
        I=J
        IR = IR*111
        RE = [IR*0.5]*SMALL+0.5
        DO 83, J=1,16
        IF [ATRIX1[I,J] -RE] 83,84,84
C       ADJUSTMENT RULE    IF L=-1 SCORE IS TOO LARGE
C                          IF L=+1 SCORE IS TOO SMALL
C                          IF L=-1 AND TEST - ISCORE IS +, INCREASE PROB.
C                          IF L=-1 AND TEST - ISCORE IS -, DECREASE PROB.
C                          IF L=+1 AND TEST - ISCORE IS +, DECREASE PROB.
C                          IF L=+1 AND TEST - ISCORE IS -, INCREASE PROB.
     84 TTRIX1[I,J] = TTRIX1[I,J]*[1.-L*[KTEST-ISCORE[I,J]]/100.0]
        GO TO 82
     83 CONTINUE
     82 CONTINUE
    120 FORMAT [10X,F 5.0]
    121 FORMAT [1H1,10X,$ TEST SCORE =$,I5  ,///,10X,$SCORE CHANGES$]
C       UPDATE TTRIX1 AND ATRIX1
        DO 90, I=1,16
        SUM = 0.
        DO 91, J=1,16
```

```
      105          SUM = SUM + TTRIX1[I,J]
      106          ATRIX1[I,J] = SUM
      107       91 CONTINUE
      108          DO 92, J=1,16
      109          TTRIX1[I,J] = TTRIX1[I,J]/SUM
      110          ATRIX1[I,J] = ATRIX1[I,J]/SUM
      111       92 CONTINUE
      112       90 CONTINUE
      113          GO TO 85
      114    C     PRINT RESULTS  TTRIX , ATRIX
      115        8 PRINT 131,KTEST
      116          DO 93, I=1,16
      117          PRINT 130, [TTRIX1[I,J], J=1,16]
      118       93 CONTINUE
      119          PRINT 132
      120          DO 94, I=1,16
      121          PRINT 130, [ATRIX1[I,J], J=1,16]
      122       94 CONTINUE
      123      130 FORMAT [10X,16[F5.2]]
      124      131 FORMAT [1H1,5X,$TRANSITION MATRIX FOR SCORE =$,I5  ,//,10X,
      125         1 $TTRIX$]
      126      132 FORMAT [/,10X,$ATRIX$,/]
      127          WRITE OUTPUT TAPE 5, 200, KTEST
      128      200 FORMAT [I3]
      129          DO 210, I=1,16
      130          WRITE OUTPUT TAPE 5,201,[ ATRIX1[I,J],J=1,16]
      131      210 CONTINUE
      132      201 FORMAT [16F5.3]
      133          GO TO 9
      134          STOP
      135    *     END
```

PROGRAM ALLOCATION

```
00006 TTRIX     01006 ATRIX     02006 ISCORE    02406 B
02446 TTRIX1    03446 ATRIX1    04446 ISTATE    05122 IR
05123 III       05124 I         05125 J         05126 KTEST
05127 K         05130 L         05131 SMALL     05133 SUM
05135 RE        05137 SCORE
```

APPENDIX 13

TRANSITION AND ACCUMULATIVE MATRICES FOR VARIOUS TARGET SCORES (-0 DATA)

TRANSITION MATRIX FOR SCORE = 10

TTRIX

0.00 0.00 1.00 0.00 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.16 0.02 0.04 0.01 0.14 0.01 0.05 0.04 0.03 0.06 0.02 0.09 0.02 0.20 0.00 0.07
0.00 0.01 0.00 0.02 0.01 0.01 0.00 0.00 0.91 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.99 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.03 0.06 0.53 0.01 0.02 0.02 0.04 0.00 0.01 0.00 0.02 0.00 0.05 0.00 0.16
0.00 0.01 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.96 0.00 0.00 0.00 0.00 0.00 0.00
0.08 0.00 0.03 0.07 0.05 0.21 0.24 0.08 0.06 0.10 0.03 0.14 0.00 0.04 0.02 0.00
0.00 0.00 0.00 0.00 0.00 0.92 0.00 0.00 0.00 0.00 0.00 0.00 0.02 0.02 0.00 0.00
0.01 0.00 0.00 0.10 0.03 0.05 0.01 0.41 0.00 0.02 0.00 0.00 0.00 0.27 0.02 0.02
0.00 0.00 0.01 0.00 0.00 0.00 0.08 0.00 0.88 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.02 0.00 0.01 0.07 0.03 0.58 0.15 0.00 0.04 0.02 0.00 0.00 0.00 0.03
0.14 0.07 0.00 0.00 0.00 0.01 0.00 0.00 0.02 0.02 0.60 0.01 0.02 0.02 0.01 0.03
0.02 0.00 0.00 0.17 0.01 0.28 0.07 0.06 0.04 0.00 0.04 0.01 0.02 0.14 0.07 0.00
0.12 0.01 0.01 0.35 0.02 0.00 0.00 0.00 0.03 0.00 0.00 0.00 0.00 0.42 0.00 0.00
0.02 0.21 0.26 0.00 0.03 0.00 0.00 0.26 0.00 0.02 0.02 0.01 0.00 0.02 0.07 0.01
0.01 0.00 0.02 0.04 0.24 0.05 0.15 0.06 0.08 0.00 0.21 0.01 0.04 0.00 0.03 0.02

ATRIX

0.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
0.16 0.18 0.22 0.24 0.38 0.40 0.45 0.50 0.53 0.59 0.62 0.71 0.73 0.93 0.93 1.00
0.00 0.01 0.02 0.05 0.07 0.07 0.07 0.07 0.98 0.99 0.99 1.00 1.00 1.00 1.00 1.00
0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 1.00 1.00 1.00
0.00 0.03 0.09 0.62 0.64 0.66 0.69 0.73 0.74 0.75 0.76 0.78 0.78 0.84 0.84 1.00
0.00 0.01 0.02 0.02 0.02 0.02 0.03 0.03 0.03 0.99 1.00 1.00 1.00 1.00 1.00 1.00
0.08 0.08 0.12 0.19 0.24 0.25 0.49 0.58 0.64 0.75 0.79 0.92 0.93 0.97 1.00 1.00
0.00 0.00 0.00 0.01 0.01 0.94 0.94 0.94 0.95 0.95 0.95 0.95 0.97 1.00 1.00 1.00
0.01 0.02 0.02 0.12 0.16 0.21 0.22 0.63 0.63 0.66 0.67 0.68 0.68 0.95 0.98 1.00
0.00 0.00 0.02 0.02 0.03 0.03 0.12 0.12 0.99 0.99 1.00 1.00 1.00 1.00 1.00 1.00
0.00 0.01 0.03 0.03 0.05 0.13 0.16 0.74 0.90 0.90 0.95 0.95 0.96 0.97 0.97 1.00
0.14 0.21 0.21 0.22 0.22 0.24 0.24 0.25 0.27 0.30 0.89 0.91 0.93 0.96 0.97 1.00
0.02 0.02 0.03 0.20 0.22 0.50 0.58 0.64 0.69 0.70 0.74 0.75 0.78 0.92 1.00 1.00
0.12 0.14 0.15 0.50 0.52 0.53 0.53 0.53 0.56 0.57 0.57 0.57 0.57 1.00 1.00 1.00
0.02 0.24 0.50 0.51 0.54 0.54 0.54 0.80 0.81 0.83 0.86 0.87 0.88 0.91 0.98 1.00
0.01 0.01 0.04 0.08 0.32 0.37 0.52 0.56 0.66 0.67 0.88 0.90 0.94 0.94 0.98 1.00

TRANSITION MATRIX FOR SCORE = 15

TRIX

0.01	0.00	0.87	0.02	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
0.28	0.01	0.01	0.03	0.10	0.02	0.01	0.00	0.03	0.05	0.03	0.01	0.02	0.24	0.03	0.07
0.00	0.14	0.04	0.09	0.16	0.01	0.03	0.00	0.32	0.05	0.06	0.02	0.02	0.00	0.01	0.00
0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00
0.00	0.08	0.00	0.48	0.04	0.01	0.02	0.01	0.00	0.03	0.02	0.00	0.00	0.02	0.01	0.21
0.01	0.14	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.65	0.03	0.00	0.00	0.01	0.00	0.00
0.06	0.01	0.07	0.06	0.03	0.02	0.32	0.07	0.00	0.07	0.03	0.15	0.00	0.00	0.02	0.00
0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.04	0.02	0.20	0.06	0.17	0.06	0.17	0.00	0.03	0.02	0.00	0.00	0.14	0.01	0.03
0.00	0.01	0.01	0.01	0.01	0.00	0.68	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.78	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.01
0.14	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.03	0.02	0.63	0.00	0.01	0.02	0.04	0.00
0.02	0.04	0.02	0.13	0.01	0.39	0.07	0.01	0.00	0.00	0.05	0.02	0.04	0.08	0.04	0.02
0.09	0.00	0.00	0.37	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.47	0.00	0.00
0.00	0.25	0.34	0.00	0.07	0.00	0.00	0.15	0.00	0.01	0.03	0.00	0.00	0.03	0.05	0.01
0.00	0.01	0.03	0.01	0.16	0.05	0.18	0.04	0.07	0.00	0.31	0.01	0.00	0.02	0.02	0.01

ATRIX

0.01	0.01	0.89	0.91	0.92	0.93	0.93	0.94	0.94	0.97	0.98	0.98	0.99	0.99	1.00	1.00
0.28	0.29	0.31	0.34	0.44	0.47	0.48	0.49	0.53	0.58	0.61	0.63	0.66	0.90	0.93	1.00
0.00	0.14	0.18	0.28	0.44	0.46	0.50	0.50	0.82	0.87	0.93	0.96	0.98	0.99	1.00	1.00
0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.95	0.95	0.95	0.95	0.96	1.00	1.00	1.00
0.00	0.09	0.11	0.58	0.63	0.65	0.67	0.68	0.69	0.72	0.74	0.75	0.75	0.77	0.79	1.00
0.01	0.16	0.16	0.27	0.27	0.27	0.28	0.28	0.29	0.94	0.97	0.97	0.98	0.99	0.99	1.00
0.08	0.10	0.18	0.24	0.28	0.30	0.62	0.70	0.70	0.78	0.82	0.97	0.97	0.97	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00
0.01	0.05	0.08	0.28	0.35	0.52	0.59	0.75	0.76	0.79	0.81	0.82	0.82	0.96	0.97	1.00
0.00	0.01	0.03	0.04	0.06	0.07	0.75	0.76	0.98	0.98	0.99	0.99	0.99	0.99	1.00	1.00
0.00	0.00	0.01	0.01	0.01	0.04	0.05	0.84	0.95	0.96	0.97	0.98	0.98	0.98	0.99	1.00
0.14	0.17	0.17	0.18	0.20	0.21	0.22	0.22	0.25	0.28	0.91	0.92	0.93	0.95	1.00	1.00
0.02	0.06	0.09	0.22	0.24	0.62	0.70	0.72	0.72	0.73	0.78	0.81	0.85	0.93	0.97	1.00
0.09	0.09	0.09	0.47	0.49	0.49	0.50	0.50	0.53	0.53	0.53	0.53	0.53	1.00	1.00	1.00
0.00	0.26	0.60	0.60	0.68	0.68	0.68	0.83	0.84	0.85	0.88	0.89	0.89	0.93	0.98	1.00
0.00	0.02	0.05	0.07	0.24	0.29	0.47	0.51	0.59	0.59	0.90	0.92	0.93	0.95	0.98	1.00

TRANSITION MATRIX FOR SCORE = 20

TTRIX

0.05	0.00	0.30	0.15	0.04	0.01	0.02	0.02	0.03	0.11	0.09	0.01	0.04	0.01	0.01	0.03
0.32	0.04	0.02	0.01	0.09	0.00	0.02	0.01	0.04	0.01	0.00	0.04	0.00	0.28	0.02	0.04
0.00	0.11	0.03	0.06	0.16	0.03	0.04	0.00	0.34	0.05	0.04	0.01	0.01	0.01	0.02	0.01
0.24	0.02	0.01	0.04	0.00	0.01	0.10	0.01	0.05	0.00	0.01	0.03	0.13	0.23	0.07	0.00
0.02	0.09	0.00	0.31	0.11	0.04	0.04	0.00	0.03	0.04	0.00	0.02	0.00	0.07	0.02	0.17
0.00	0.09	0.00	0.09	0.00	0.00	0.02	0.00	0.00	0.73	0.02	0.00	0.00	0.00	0.00	0.00
0.12	0.01	0.07	0.05	0.05	0.01	0.31	0.05	0.01	0.03	0.12	0.13	0.00	0.00	0.00	0.00
0.00	0.01	0.01	0.02	0.00	0.74	0.01	0.02	0.01	0.00	0.01	0.00	0.02	0.09	0.01	0.00
0.01	0.00	0.00	0.32	0.08	0.19	0.03	0.02	0.03	0.02	0.02	0.00	0.01	0.12	0.00	0.03
0.00	0.00	0.03	0.01	0.01	0.00	0.62	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.01	0.00	0.01	0.04	0.01	0.50	0.28	0.01	0.02	0.00	0.02	0.00	0.01	0.03
0.29	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.02	0.42	0.02	0.03	0.03	0.03	0.01
0.01	0.00	0.01	0.04	0.00	0.45	0.05	0.03	0.02	0.00	0.11	0.01	0.05	0.12	0.02	0.01
0.02	0.00	0.00	0.70	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.19	0.00	0.00
0.00	0.25	0.36	0.00	0.04	0.00	0.00	0.11	0.00	0.00	0.03	0.00	0.00	0.02	0.08	0.02
0.00	0.01	0.02	0.02	0.14	0.05	0.19	0.04	0.06	0.00	0.34	0.00	0.02	0.00	0.01	0.01

ATRIX

0.05	0.05	0.36	0.54	0.58	0.60	0.62	0.65	0.68	0.70	0.88	0.89	0.94	0.95	0.97	1.00
0.32	0.35	0.38	0.40	0.49	0.49	0.52	0.54	0.58	0.60	0.60	0.64	0.64	0.93	0.95	1.00
0.00	0.12	0.15	0.24	0.39	0.43	0.47	0.47	0.82	0.87	0.91	0.92	0.94	0.96	0.99	1.00
0.64	0.26	0.27	0.31	0.32	0.33	0.44	0.45	0.51	0.52	0.54	0.57	0.70	0.93	1.00	1.00
0.02	0.11	0.12	0.43	0.55	0.59	0.64	0.64	0.68	0.72	0.72	0.73	0.74	0.81	0.83	1.00
0.00	0.09	0.09	0.19	0.20	0.20	0.22	0.23	0.23	0.96	0.98	0.99	0.99	0.99	0.99	1.00
0.12	0.14	0.21	0.27	0.32	0.33	0.64	0.70	0.71	0.74	0.86	0.99	0.99	1.00	1.00	1.00
0.00	0.01	0.03	0.05	0.05	0.79	0.81	0.84	0.85	0.85	0.86	0.87	0.89	0.98	1.00	1.00
0.01	0.01	0.02	0.35	0.43	0.62	0.66	0.74	0.77	0.80	0.82	0.83	0.84	0.96	0.97	1.00
0.00	0.01	0.04	0.05	0.07	0.07	0.69	0.69	0.98	0.98	0.99	0.99	0.99	0.99	1.00	1.00
0.00	0.00	0.02	0.02	0.03	0.08	0.10	0.60	0.88	0.90	0.92	0.93	0.95	0.95	0.96	1.00
0.29	0.35	0.35	0.36	0.37	0.39	0.39	0.39	0.42	0.44	0.86	0.89	0.92	0.95	0.98	1.00
0.01	0.02	0.04	0.08	0.08	0.54	0.59	0.62	0.65	0.65	0.76	0.78	0.83	0.96	0.98	1.00
0.02	0.02	0.03	0.74	0.75	0.76	0.76	0.77	0.78	0.78	0.78	0.80	0.80	0.99	1.00	1.00
0.00	0.29	0.65	0.65	0.69	0.70	0.71	0.82	0.83	0.84	0.87	0.87	0.87	0.90	0.98	1.00
0.00	0.02	0.04	0.06	0.21	0.26	0.45	0.52	0.58	0.58	0.93	0.93	0.96	0.97	0.98	1.00

TRANSITION MATRIX FOR SCORE = 2

TIRIX

.07	0.00	0.21	0.17	0.09	0.04	0.02	0.02	0.04	0.11	0.41	0.02	0.04	0.00	0.02	0.01
.07	0.01	0.01	0.01	0.06	0.03	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.22	0.05	0.06
.03	0.13	0.03	0.07	0.17	0.01	0.06	0.00	0.17	0.02	0.05	0.01	0.03	0.01	0.08	0.04
.06	0.01	0.00	0.01	0.00	0.03	0.06	0.01	0.06	0.01	0.03	0.02	0.10	0.05	0.08	0.00
.05	0.04	0.04	0.15	0.18	0.05	0.03	0.04	0.03	0.05	0.00	0.01	0.02	0.05	0.00	0.14
.03	0.13	0.01	0.42	0.01	0.02	0.05	0.01	0.00	0.15	0.05	0.00	0.02	0.01	0.00	0.03
.07	0.03	0.05	0.03	0.08	0.01	0.36	0.06	0.05	0.01	0.06	0.13	0.00	0.02	0.02	0.00
.02	0.03	0.00	0.01	0.02	0.56	0.00	0.03	0.01	0.00	0.03	0.00	0.05	0.14	0.01	0.03
.00	0.00	0.02	0.27	0.13	0.26	0.05	0.00	0.01	0.02	0.01	0.00	0.00	0.08	0.01	0.03
.00	0.01	0.02	0.02	0.03	0.01	0.76	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.01
.00	0.00	0.01	0.01	0.01	0.05	0.00	0.25	0.69	0.00	0.02	0.00	0.00	0.00	0.00	0.01
.10	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.01	0.57	0.02	0.01	0.01	0.02	0.01
.02	0.02	0.00	0.00	0.01	0.36	0.06	0.02	0.00	0.00	0.04	0.00	0.16	0.18	0.02	0.01
.05	0.01	0.01	0.49	0.04	0.03	0.02	0.01	0.04	0.00	0.00	0.01	0.00	0.25	0.01	0.01
.03	0.33	0.23	0.00	0.05	0.00	0.00	0.13	0.01	0.03	0.02	0.00	0.00	0.02	0.09	0.03
.00	0.01	0.01	0.11	0.13	0.06	0.16	0.06	0.06	0.03	0.27	0.00	0.03	0.00	0.01	0.00

ATRIX

.07	0.07	0.29	0.46	0.55	0.59	0.62	0.63	0.68	0.79	0.90	0.92	0.96	0.97	0.99	1.00
.37	0.38	0.40	0.42	0.48	0.49	0.51	0.53	0.54	0.60	0.61	0.65	0.67	0.89	0.94	1.00
.03	0.16	0.20	0.27	0.44	0.45	0.52	0.52	0.69	0.75	0.81	0.82	0.85	0.87	0.96	1.00
.08	0.42	0.49	0.51	0.51	0.52	0.58	0.60	0.67	0.68	0.72	0.75	0.85	0.91	0.99	1.00
.05	0.14	0.18	0.36	0.54	0.59	0.63	0.67	0.71	0.76	0.77	0.78	0.81	0.86	0.86	1.00
.13	0.17	0.19	0.61	0.62	0.69	0.71	0.71	0.71	0.87	0.92	0.93	0.95	0.96	0.97	1.00
.07	0.07	0.13	0.16	0.24	0.25	0.61	0.69	0.74	0.74	0.82	0.95	0.95	0.97	1.00	1.00
.02	0.07	0.08	0.10	0.10	0.66	0.67	0.70	0.72	0.72	0.75	0.76	0.82	0.95	0.97	1.00
.00	0.00	0.02	0.31	0.43	0.60	0.75	0.80	0.82	0.85	0.86	0.87	0.87	0.95	0.97	1.00
.00	0.02	0.04	0.05	0.10	0.11	0.86	0.87	0.96	0.96	0.97	0.98	0.98	0.99	0.99	1.00
.00	0.00	0.01	0.01	0.03	0.09	0.10	0.35	0.94	0.94	0.97	0.97	0.97	0.97	0.98	1.00
.19	0.24	0.25	0.25	0.27	0.28	0.29	0.29	0.31	0.33	0.90	0.93	0.94	0.96	0.98	1.00
.02	0.04	0.04	0.11	0.12	0.46	0.54	0.56	0.57	0.58	0.63	0.63	0.79	0.97	0.99	1.00
.05	0.06	0.07	0.50	0.61	0.62	0.64	0.65	0.70	0.70	0.70	0.72	0.73	0.98	0.99	1.00
.03	0.33	0.37	0.57	0.62	0.62	0.63	0.77	0.78	0.82	0.84	0.85	0.85	0.87	0.97	1.00
.00	0.01	0.03	0.14	0.27	0.33	0.49	0.56	0.62	0.65	0.92	0.93	0.97	0.97	0.99	1.00

TRANSITION MATRIX FOR PERIOD = 30

TRIX

0.18	0.01	0.13	0.16	0.09	0.13	0.01	0.02	0.09	0.12	0.03	0.15	0.06	0.04	0.03	
0.23	0.01	0.02	0.06	0.05	0.13	0.02	0.10	0.01	0.04	0.02	0.20	0.17	0.04	0.05	
0.11	0.11	0.03	0.05	0.15	0.14	0.15	0.00	0.09	0.07	0.01	0.03	0.02	0.07	0.13	
0.07	0.01	0.01	0.03	0.02	0.01	0.12	0.08	0.13	0.07	0.05	0.13	0.05	0.15	0.03	
0.12	0.03	0.01	0.04	0.11	0.03	0.13	0.02	0.08	0.14	0.13	0.01	0.01	0.13	0.00	0.05
0.03	0.05	0.01	0.26	0.09	0.01	0.11	0.03	0.03	0.17	0.05	0.01	0.07	0.02	0.00	0.05
0.05	0.05	0.05	0.02	0.12	0.06	0.23	0.12	0.01	0.01	0.12	0.11	0.01	0.01	0.00	0.03
0.01	0.12	0.02	0.06	0.03	0.14	0.02	0.06	0.02	0.06	0.02	0.01	0.04	0.26	0.06	0.01
0.00	0.00	0.00	0.51	0.11	0.09	0.08	0.02	0.01	0.02	0.03	0.01	0.00	0.05	0.00	0.02
0.00	0.01	0.04	0.02	0.04	0.00	0.14	0.00	0.61	0.00	0.01	0.01	0.00	0.00	0.01	0.03
0.00	0.01	0.02	0.00	0.02	0.16	0.21	0.16	0.04	0.02	0.05	0.01	0.03	0.00	0.00	0.03
0.17	0.09	0.01	0.00	0.06	0.01	0.01	0.00	0.03	0.02	0.46	0.02	0.02	0.03	0.00	0.02
0.01	0.01	0.01	0.05	0.10	0.49	0.04	0.03	0.02	0.00	0.05	0.05	0.03	0.11	0.01	0.03
0.10	0.01	0.02	0.20	0.05	0.04	0.03	0.03	0.04	0.00	0.10	0.06	0.01	0.35	0.01	0.01
0.12	0.16	0.17	0.00	0.08	0.04	0.01	0.20	0.00	0.04	0.03	0.00	0.00	0.03	0.18	0.03
0.00	0.00	0.01	0.06	0.07	0.05	0.13	0.04	0.04	0.02	0.38	0.00	0.03	0.01	0.02	0.06

ATRIX

0.06	0.08	0.22	0.36	0.48	0.51	0.53	0.56	0.62	0.70	0.82	0.86	0.91	0.92	0.96	1.00
0.23	0.29	0.28	0.34	0.40	0.54	0.56	0.59	0.61	0.66	0.70	0.72	0.73	0.90	0.95	1.00
0.01	0.13	0.17	0.22	0.38	0.42	0.48	0.48	0.57	0.64	0.73	0.74	0.78	0.80	0.87	1.00
0.07	0.09	0.11	0.14	0.16	0.18	0.30	0.36	0.49	0.52	0.58	0.62	0.75	0.81	0.96	1.00
0.02	0.05	0.06	0.12	0.23	0.26	0.38	0.41	0.47	0.62	0.75	0.80	0.81	0.94	0.95	1.00
0.03	0.13	0.14	0.41	0.45	0.47	0.58	0.62	0.62	0.79	0.84	0.86	0.93	0.95	0.95	1.00
0.05	0.11	0.17	0.19	0.31	0.32	0.55	0.67	0.69	0.71	0.82	0.94	0.95	0.96	0.97	1.00
0.01	0.13	0.15	0.23	0.27	0.49	0.48	0.55	0.57	0.57	0.60	0.61	0.65	0.92	0.98	1.00
0.00	0.01	0.01	0.53	0.65	0.74	0.82	0.84	0.86	0.88	0.91	0.92	0.92	0.97	0.98	1.00
0.00	0.02	0.07	0.09	0.14	0.15	0.30	0.30	0.91	0.92	0.93	0.94	0.95	0.95	0.97	1.00
0.00	0.01	0.03	0.03	0.06	0.22	0.24	0.40	0.84	0.86	0.91	0.92	0.95	0.96	0.96	1.00
0.17	0.26	0.27	0.28	0.34	0.35	0.36	0.36	0.39	0.41	0.87	0.90	0.93	0.97	0.97	1.00
0.01	0.02	0.03	0.09	0.10	0.59	0.63	0.66	0.68	0.69	0.75	0.80	0.84	0.95	0.97	1.00
0.10	0.12	0.14	0.34	0.40	0.44	0.47	0.50	0.55	0.56	0.65	0.62	0.63	0.98	0.99	1.00
0.02	0.10	0.36	0.36	0.44	0.45	0.46	0.66	0.66	0.71	0.74	0.75	0.75	0.79	0.97	1.00
0.00	0.01	0.02	0.09	0.17	0.21	0.36	0.40	0.45	0.47	0.85	0.86	0.89	0.91	0.93	1.00

TRANSITION MATRIX FOR SLOPE = 55

TIRIX

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ATRIX

[illegible]	0.10	0.19	0.31	0.41	0.44	0.47	0.56	0.57	0.69	0.85	0.88	0.91	0.96	0.98	1.00
[illegible]	0.29	0.32	0.37	0.45	0.46	0.52	0.54	0.56	0.63	0.65	0.68	0.71	0.90	0.92	1.00
[illegible]	0.12	0.16	0.25	0.34	0.36	0.43	0.45	0.53	0.63	0.76	0.78	0.82	0.87	0.99	1.00
[illegible]	0.05	0.07	0.11	0.13	0.14	0.19	0.26	0.43	0.46	0.53	0.56	0.77	0.79	0.96	1.00
[illegible]	0.09	0.12	0.18	0.32	0.36	0.40	0.56	0.64	0.82	0.83	0.86	0.90	0.91	0.93	1.00
[illegible]	0.12	0.18	0.37	0.52	0.52	0.68	0.69	0.70	0.71	0.79	0.82	0.82	0.83	0.83	1.00
[illegible]	0.08	0.15	0.17	0.31	0.31	0.58	0.76	0.76	0.77	0.91	0.98	0.99	0.99	1.00	1.00
[illegible]	0.21	0.24	0.33	0.35	0.37	0.42	0.55	0.59	0.60	0.66	0.68	0.76	0.86	0.98	1.00
[illegible]	0.01	0.02	0.15	0.47	0.53	0.76	0.79	0.83	0.84	0.88	0.90	0.91	0.94	0.97	1.00
[illegible]	0.06	0.09	0.16	0.29	0.32	0.68	0.69	0.84	0.85	0.88	0.89	0.92	0.93	0.93	1.00
[illegible]	0.02	0.05	0.05	0.09	0.64	0.67	0.74	0.82	0.84	0.91	0.92	0.94	0.94	0.96	1.00
[illegible]	0.82	0.83	0.83	0.86	0.86	0.87	0.87	0.88	0.89	0.90	0.94	0.95	0.97	0.99	1.00
[illegible]	0.02	0.03	0.12	0.15	0.31	0.38	0.42	0.47	0.47	0.53	0.54	0.59	0.95	0.97	1.00
[illegible]	0.09	0.12	0.24	0.47	0.52	0.57	0.72	0.80	0.81	0.84	0.94	0.95	0.95	0.96	1.00
[illegible]	0.58	0.62	0.62	0.68	0.68	0.68	0.72	0.73	0.76	0.78	0.79	0.79	0.82	0.98	1.00
[illegible]	0.00	0.00	0.02	0.04	0.06	0.19	0.20	0.22	0.23	0.96	0.96	0.99	0.99	0.99	1.00

ATRIX

ATRIX

TRANSITION MATRIX FOR SCORE = 45

TRIX

0.08	0.00	0.02	0.06	0.09	0.05	0.01	0.05	0.11	0.04	0.18	0.14	0.02	0.03	0.06	0.08
0.02	0.01	0.04	0.06	0.11	0.03	0.17	0.04	0.02	0.14	0.03	0.04	0.04	0.03	0.01	0.12
0.00	0.13	0.03	0.08	0.02	0.03	0.06	0.01	0.28	0.07	0.10	0.01	0.03	0.04	0.11	0.01
0.04	0.01	0.01	0.02	0.03	0.02	0.06	0.05	0.02	0.09	0.06	0.06	0.04	0.03	0.13	0.02
0.04	0.02	0.00	0.02	0.06	0.14	0.05	0.04	0.03	0.28	0.02	0.03	0.00	0.07	0.08	0.02
0.06	0.04	0.02	0.08	0.06	0.03	0.23	0.04	0.02	0.04	0.06	0.01	0.08	0.00	0.00	0.15
0.03	0.01	0.09	0.03	0.11	0.00	0.07	0.34	0.03	0.02	0.12	0.04	0.00	0.02	0.02	0.00
0.01	0.14	0.00	0.20	0.05	0.01	0.06	0.04	0.03	0.00	0.09	0.01	0.00	0.07	0.12	0.02
0.01	0.02	0.02	0.01	0.22	0.12	0.30	0.01	0.05	0.06	0.03	0.01	0.00	0.01	0.03	0.05
0.04	0.05	0.01	0.26	0.08	0.02	0.11	0.01	0.03	0.08	0.05	0.02	0.01	0.00	0.09	0.06
0.03	0.03	0.03	0.04	0.07	0.43	0.02	0.01	0.02	0.04	0.10	0.00	0.07	0.00	0.05	0.06
0.03	0.14	0.02	0.01	0.07	0.02	0.00	0.00	0.09	0.04	0.11	0.11	0.07	0.08	0.03	0.14
0.02	0.01	0.04	0.05	0.01	0.04	0.09	0.04	0.02	0.04	0.11	0.02	0.09	0.33	0.01	0.01
0.03	0.04	0.06	0.13	0.19	0.08	0.12	0.05	0.01	0.00	0.01	0.15	0.00	0.00	0.01	0.05
0.12	0.07	0.11	0.00	0.15	0.02	0.01	0.04	0.03	0.11	0.06	0.02	0.00	0.07	0.12	0.06
0.00	0.00	0.02	0.14	0.01	0.09	0.03	0.12	0.02	0.02	0.30	0.01	0.11	0.00	0.03	0.07

ATRIX

0.08	0.08	0.11	0.17	0.27	0.31	0.33	0.41	0.53	0.57	0.65	0.80	0.82	0.85	0.92	1.00
0.02	0.04	0.08	0.15	0.25	0.29	0.46	0.53	0.55	0.71	0.74	0.78	0.83	0.87	0.88	1.00
0.00	0.13	0.17	0.19	0.21	0.25	0.31	0.32	0.60	0.68	0.78	0.79	0.83	0.87	0.98	1.00
0.04	0.05	0.07	0.09	0.13	0.16	0.22	0.30	0.53	0.62	0.69	0.75	0.80	0.84	0.97	1.00
0.04	0.07	0.08	0.11	0.19	0.33	0.39	0.43	0.52	0.75	0.77	0.80	0.81	0.88	0.97	1.00
0.06	0.12	0.15	0.24	0.30	0.33	0.57	0.61	0.63	0.68	0.74	0.75	0.84	0.85	0.85	1.00
0.03	0.04	0.15	0.18	0.29	0.30	0.38	0.71	0.75	0.77	0.89	0.94	0.95	0.97	1.00	1.00
0.01	0.19	0.20	0.42	0.47	0.49	0.55	0.63	0.66	0.67	0.76	0.77	0.78	0.85	0.97	1.00
0.01	0.03	0.06	0.07	0.29	0.41	0.71	0.73	0.78	0.84	0.87	0.88	0.89	0.91	0.94	1.00
0.04	0.10	0.12	0.38	0.47	0.49	0.60	0.62	0.65	0.73	0.79	0.81	0.83	0.84	0.94	1.00
0.03	0.04	0.08	0.08	0.15	0.58	0.60	0.62	0.65	0.69	0.80	0.81	0.88	0.88	0.94	1.00
0.03	0.18	0.20	0.22	0.30	0.32	0.33	0.33	0.43	0.47	0.57	0.68	0.75	0.83	0.86	1.00
0.02	0.03	0.07	0.13	0.14	0.19	0.28	0.33	0.35	0.40	0.51	0.54	0.63	0.96	0.98	1.00
0.03	0.08	0.15	0.28	0.47	0.55	0.67	0.73	0.75	0.75	0.77	0.92	0.93	0.93	0.94	1.00
0.12	0.19	0.30	0.36	0.45	0.46	0.47	0.52	0.55	0.66	0.72	0.74	0.74	0.81	0.94	1.00
0.00	0.00	0.02	0.17	0.18	0.27	0.30	0.42	0.44	0.46	0.77	0.78	0.89	0.89	0.93	1.00

ITION MATRIX FOR SCORE = 50

TRIX

0.07	0.00	0.07	0.08	0.07	0.08	0.01	0.08	0.09	0.05	0.07	0.12	0.02	0.05	0.04	0.06
0.11	0.01	0.02	0.08	0.04	0.11	0.09	0.02	0.01	0.10	0.08	0.02	0.04	0.09	0.07	0.04
0.08	0.05	0.02	0.04	0.08	0.03	0.05	0.05	0.05	0.04	0.07	0.00	0.03	0.11	0.11	0.08
0.04	0.01	0.09	0.02	0.04	0.01	0.06	0.06	0.12	0.11	0.05	0.04	0.08	0.04	0.09	0.10
0.02	0.00	0.00	0.01	0.04	0.11	0.12	0.11	0.03	0.07	0.03	0.12	0.08	0.06	0.14	0.01
0.08	0.04	0.02	0.10	0.04	0.03	0.13	0.06	0.07	0.02	0.02	0.02	0.11	0.12	0.00	0.08
0.03	0.13	0.04	0.01	0.08	0.00	0.08	0.13	0.05	0.00	0.07	0.05	0.06	0.02	0.08	0.11
0.02	0.13	0.08	0.11	0.09	0.08	0.04	0.05	0.01	0.00	0.05	0.00	0.02	0.09	0.06	0.11
0.00	0.07	0.04	0.11	0.14	0.11	0.16	0.02	0.03	0.03	0.15	0.00	0.00	0.04	0.03	0.02
0.01	0.03	0.04	0.05	0.08	0.06	0.12	0.06	0.11	0.07	0.02	0.01	0.11	0.01	0.05	0.10
0.13	0.09	0.02	0.00	0.03	0.11	0.02	0.09	0.11	0.03	0.06	0.00	0.09	0.00	0.13	0.04
0.12	0.09	0.11	0.00	0.07	0.01	0.01	0.00	0.03	0.02	0.14	0.09	0.04	0.05	0.03	0.13
0.01	0.01	0.03	0.05	0.02	0.12	0.06	0.11	0.08	0.05	0.07	0.08	0.08	0.09	0.01	0.09
0.04	0.01	0.12	0.10	0.04	0.09	0.12	0.03	0.03	0.00	0.09	0.12	0.07	0.07	0.01	0.01
0.10	0.09	0.09	0.00	0.09	0.00	0.01	0.08	0.08	0.12	0.05	0.01	0.00	0.06	0.11	0.04
0.00	0.01	0.01	0.13	0.07	0.07	0.10	0.05	0.04	0.05	0.13	0.01	0.14	0.01	0.02	0.12

ATRIX

0.07	0.07	0.15	0.23	0.30	0.36	0.37	0.46	0.55	0.61	0.69	0.81	0.83	0.88	0.93	1.00
0.11	0.12	0.14	0.23	0.27	0.38	0.48	0.51	0.52	0.63	0.71	0.74	0.78	0.88	0.96	1.00
0.08	0.14	0.17	0.21	0.29	0.37	0.42	0.47	0.52	0.57	0.65	0.66	0.69	0.80	0.91	1.00
0.04	0.05	0.15	0.17	0.21	0.23	0.29	0.35	0.47	0.58	0.63	0.67	0.76	0.80	0.90	1.00
0.02	0.03	0.04	0.05	0.09	0.21	0.33	0.44	0.47	0.55	0.58	0.70	0.78	0.85	0.99	1.00
0.08	0.13	0.15	0.25	0.30	0.34	0.46	0.53	0.60	0.63	0.66	0.69	0.80	0.92	0.92	1.00
0.03	0.16	0.21	0.22	0.30	0.31	0.39	0.52	0.58	0.59	0.66	0.72	0.78	0.80	0.89	1.00
0.02	0.15	0.23	0.34	0.44	0.52	0.57	0.62	0.64	0.64	0.69	0.70	0.73	0.83	0.89	1.00
0.00	0.07	0.12	0.24	0.37	0.48	0.64	0.67	0.70	0.73	0.89	0.89	0.90	0.94	0.98	1.00
0.01	0.05	0.10	0.16	0.24	0.31	0.43	0.49	0.60	0.67	0.70	0.71	0.82	0.84	0.90	1.00
0.13	0.22	0.25	0.25	0.28	0.40	0.42	0.51	0.62	0.66	0.72	0.73	0.82	0.82	0.95	1.00
0.12	0.21	0.33	0.33	0.40	0.42	0.43	0.44	0.47	0.50	0.64	0.73	0.78	0.83	0.87	1.00
0.01	0.02	0.05	0.11	0.13	0.25	0.31	0.42	0.50	0.56	0.63	0.72	0.80	0.90	0.91	1.00
0.04	0.05	0.18	0.28	0.33	0.42	0.54	0.58	0.61	0.61	0.71	0.83	0.90	0.98	0.99	1.00
0.10	0.20	0.30	0.30	0.40	0.40	0.42	0.50	0.59	0.71	0.76	0.77	0.78	0.84	0.95	1.00
0.00	0.01	0.03	0.16	0.24	0.31	0.41	0.47	0.51	0.56	0.69	0.70	0.84	0.85	0.88	1.00

TRANSITION MATRIX FOR SCORE = 55

TRIX

0.04	0.00	0.00	0.02	0.06	0.06	0.02	0.13	0.08	0.08	0.07	0.17	0.02	0.03	0.06	0.09
0.03	0.01	0.02	0.08	0.03	0.25	0.09	0.02	0.01	0.07	0.10	0.02	0.03	0.04	0.07	0.05
0.04	0.03	0.01	0.06	0.06	0.13	0.04	0.03	0.04	0.04	0.05	0.01	0.04	0.19	0.09	0.09
0.03	0.01	0.12	0.03	0.09	0.00	0.04	0.06	0.08	0.16	0.05	0.02	0.05	0.03	0.05	0.11
0.03	0.00	0.00	0.00	0.01	0.10	0.12	0.14	0.02	0.04	0.03	0.10	0.02	0.03	0.30	0.00
0.10	0.03	0.02	0.05	0.06	0.04	0.09	0.12	0.09	0.00	0.02	0.04	0.16	0.03	0.00	0.09
0.02	0.35	0.03	0.01	0.05	0.00	0.01	0.05	0.07	0.00	0.01	0.03	0.05	0.03	0.16	0.07
0.02	0.08	0.13	0.08	0.11	0.03	0.07	0.02	0.01	0.00	0.05	0.00	0.02	0.03	0.05	0.22
0.00	0.09	0.08	0.02	0.07	0.24	0.12	0.03	0.03	0.04	0.15	0.00	0.01	0.02	0.04	0.01
0.01	0.03	0.01	0.04	0.08	0.13	0.00	0.05	0.00	0.13	0.02	0.01	0.23	0.01	0.06	0.12
0.19	0.10	0.03	0.00	0.02	0.05	0.02	0.00	0.07	0.04	0.05	0.01	0.14	0.00	0.20	0.04
0.10	0.05	0.03	0.00	0.10	0.03	0.02	0.00	0.07	0.03	0.01	0.15	0.07	0.06	0.03	0.19
0.01	0.01	0.01	0.04	0.02	0.03	0.05	0.16	0.17	0.06	0.08	0.05	0.09	0.11	0.00	0.06
0.02	0.01	0.12	0.06	0.02	0.08	0.13	0.03	0.01	0.00	0.12	0.12	0.20	0.02	0.01	0.01
0.20	0.00	0.01	0.00	0.09	0.00	0.03	0.00	0.07	0.20	0.13	0.01	0.00	0.10	0.02	0.08
0.00	0.00	0.02	0.18	0.04	0.04	0.02	0.06	0.06	0.06	0.04	0.01	0.17	0.03	0.03	0.19

ATRIX

0.04	0.04	0.05	0.08	0.14	0.21	0.24	0.36	0.45	0.53	0.60	0.78	0.80	0.84	0.90	1.00
0.03	0.04	0.07	0.16	0.20	0.44	0.54	0.56	0.58	0.66	0.76	0.79	0.82	0.87	0.94	1.00
0.04	0.07	0.09	0.16	0.22	0.35	0.39	0.43	0.47	0.51	0.57	0.58	0.62	0.81	0.91	1.00
0.03	0.05	0.17	0.21	0.30	0.31	0.35	0.42	0.50	0.66	0.72	0.74	0.79	0.83	0.89	1.00
0.03	0.03	0.03	0.04	0.06	0.17	0.29	0.43	0.45	0.49	0.52	0.63	0.65	0.69	0.99	1.00
0.10	0.14	0.16	0.21	0.28	0.32	0.42	0.54	0.63	0.64	0.67	0.71	0.87	0.90	0.90	1.00
0.02	0.37	0.41	0.42	0.47	0.48	0.49	0.55	0.62	0.63	0.65	0.68	0.74	0.77	0.92	1.00
0.02	0.12	0.25	0.33	0.45	0.48	0.55	0.58	0.59	0.60	0.65	0.66	0.69	0.73	0.78	1.00
0.00	0.09	0.18	0.20	0.28	0.52	0.64	0.67	0.71	0.75	0.90	0.90	0.92	0.94	0.98	1.00
0.01	0.05	0.06	0.11	0.19	0.33	0.33	0.39	0.39	0.53	0.55	0.56	0.79	0.81	0.88	1.00
0.19	0.29	0.32	0.32	0.34	0.40	0.42	0.43	0.51	0.55	0.60	0.61	0.75	0.75	0.95	1.00
0.10	0.16	0.19	0.20	0.30	0.34	0.36	0.36	0.43	0.47	0.48	0.63	0.71	0.77	0.81	1.00
0.01	0.02	0.04	0.08	0.11	0.14	0.20	0.35	0.52	0.59	0.67	0.72	0.82	0.93	0.93	1.00
0.02	0.04	0.16	0.23	0.25	0.33	0.46	0.49	0.50	0.51	0.63	0.75	0.95	0.97	0.99	1.00
0.20	0.21	0.23	0.23	0.33	0.33	0.36	0.37	0.44	0.64	0.77	0.79	0.79	0.89	0.92	1.00
0.00	0.01	0.03	0.22	0.26	0.30	0.32	0.39	0.46	0.52	0.57	0.58	0.75	0.78	0.81	1.00

TRANSITION MATRIX FOR SCORE = 60

TYRIX

0.02 0.00 0.09 0.03 0.05 0.06 0.02 0.11 0.04 0.06 0.06 0.16 0.03 0.07 0.06 0.09
0.04 0.01 0.02 0.11 0.03 0.14 0.13 0.03 0.01 0.07 0.09 0.02 0.05 0.03 0.11 0.05
0.14 0.05 0.21 0.03 0.04 0.07 0.04 0.07 0.04 0.02 0.05 0.00 0.02 0.12 0.07 0.17
0.02 0.01 0.11 0.07 0.05 0.01 0.04 0.06 0.07 0.13 0.05 0.01 0.09 0.05 0.05 0.17
0.02 0.03 0.00 0.00 0.02 0.11 0.09 0.18 0.03 0.04 0.02 0.12 0.08 0.05 0.18 0.00
0.12 0.04 0.01 0.03 0.04 0.04 0.10 0.11 0.07 0.01 0.01 0.02 0.11 0.16 0.00 0.08
0.01 0.27 0.02 0.01 0.05 0.00 0.02 0.05 0.08 0.00 0.03 0.04 0.05 0.02 0.11 0.18
0.03 0.07 0.14 0.08 0.12 0.09 0.05 0.04 0.01 0.00 0.03 0.00 0.02 0.01 0.06 0.18
0.01 0.14 0.08 0.05 0.06 0.05 0.06 0.00 0.04 0.04 0.27 0.01 0.01 0.06 0.05 0.02
0.01 0.03 0.02 0.07 0.04 0.08 0.01 0.11 0.00 0.09 0.03 0.01 0.15 0.02 0.09 0.18
0.16 0.18 0.02 0.00 0.04 0.09 0.02 0.01 0.02 0.03 0.03 0.00 0.11 0.00 0.19 0.04
0.03 0.04 0.29 0.00 0.08 0.01 0.01 0.00 0.02 0.01 0.06 0.11 0.04 0.05 0.04 0.16
0.01 0.01 0.05 0.05 0.02 0.02 0.05 0.12 0.08 0.05 0.07 0.13 0.08 0.09 0.01 0.11
0.01 0.01 0.15 0.01 0.01 0.11 0.14 0.03 0.04 0.00 0.18 0.13 0.08 0.04 0.01 0.01
0.12 0.06 0.06 0.00 0.09 0.00 0.01 0.11 0.19 0.12 0.05 0.01 0.00 0.05 0.05 0.04
0.00 0.01 0.02 0.14 0.11 0.07 0.00 0.05 0.02 0.09 0.09 0.01 0.12 0.02 0.03 0.17

ATRIX

0.02 0.02 0.12 0.16 0.21 0.27 0.30 0.40 0.45 0.52 0.58 0.74 0.77 0.85 0.91 1.00
0.04 0.05 0.08 0.19 0.22 0.37 0.50 0.53 0.55 0.63 0.73 0.76 0.81 0.84 0.95 1.00
0.14 0.19 0.20 0.24 0.28 0.35 0.40 0.48 0.52 0.55 0.60 0.61 0.64 0.75 0.83 1.00
0.02 0.03 0.15 0.17 0.22 0.24 0.29 0.36 0.43 0.56 0.61 0.63 0.73 0.78 0.83 1.00
0.02 0.02 0.03 0.03 0.06 0.17 0.27 0.45 0.48 0.53 0.55 0.67 0.76 0.81 0.99 1.00
0.12 0.16 0.18 0.22 0.27 0.31 0.41 0.52 0.59 0.61 0.63 0.65 0.76 0.92 0.92 1.00
0.01 0.29 0.32 0.33 0.39 0.39 0.42 0.48 0.56 0.56 0.59 0.64 0.70 0.72 0.82 1.00
0.03 0.10 0.25 0.33 0.45 0.55 0.60 0.65 0.67 0.67 0.71 0.72 0.74 0.76 0.82 1.00
0.01 0.15 0.24 0.29 0.36 0.42 0.48 0.48 0.53 0.57 0.84 0.85 0.86 0.93 0.98 1.00
0.01 0.05 0.07 0.16 0.20 0.28 0.30 0.40 0.41 0.50 0.54 0.55 0.70 0.73 0.82 1.00
0.16 0.34 0.37 0.37 0.42 0.51 0.54 0.55 0.57 0.61 0.65 0.65 0.76 0.76 0.95 1.00
0.03 0.07 0.37 0.37 0.46 0.47 0.49 0.49 0.52 0.54 0.60 0.71 0.75 0.80 0.84 1.00
0.01 0.02 0.07 0.13 0.15 0.17 0.23 0.35 0.43 0.49 0.56 0.70 0.78 0.88 0.89 1.00
0.01 0.03 0.18 0.19 0.21 0.32 0.46 0.50 0.54 0.54 0.72 0.85 0.93 0.98 0.99 1.00
0.12 0.19 0.25 0.25 0.34 0.35 0.36 0.47 0.66 0.78 0.83 0.84 0.85 0.91 0.96 1.00
0.00 0.02 0.04 0.18 0.29 0.36 0.37 0.42 0.44 0.53 0.63 0.65 0.76 0.79 0.83 1.00

TRANSITION MATRIX FOR SCORE = 65

TRIX

0.06 0.03 0.01 0.03 0.04 0.06 0.02 0.14 0.26 0.01 0.01 0.17 0.01 0.10 0.07 0.14
0.01 0.01 0.02 0.11 0.02 0.12 0.17 0.03 0.01 0.03 0.12 0.02 0.05 0.03 0.18 0.02
0.36 0.04 0.01 0.00 0.02 0.05 0.02 0.07 0.01 0.02 0.02 0.00 0.01 0.11 0.03 0.18
0.04 0.01 0.14 0.02 0.04 0.01 0.04 0.05 0.03 0.10 0.01 0.01 0.01 0.01 0.11 0.29
0.02 0.00 0.00 0.00 0.02 0.06 0.08 0.10 0.02 0.03 0.03 0.14 0.07 0.04 0.29 0.00
0.05 0.01 0.00 0.00 0.02 0.02 0.03 0.03 0.03 0.01 0.00 0.02 0.03 0.66 0.00 0.01
0.00 0.37 0.00 0.01 0.02 0.00 0.02 0.07 0.26 0.01 0.02 0.02 0.06 0.01 0.09 0.18
0.04 0.02 0.18 0.09 0.14 0.01 0.06 0.05 0.01 0.00 0.05 0.01 0.01 0.04 0.05 0.18
0.00 0.22 0.14 0.00 0.07 0.01 0.02 0.00 0.04 0.02 0.30 0.01 0.00 0.05 0.04 0.03
0.01 0.02 0.00 0.01 0.04 0.08 0.00 0.18 0.01 0.06 0.02 0.01 0.14 0.02 0.21 0.12
0.37 0.31 0.01 0.02 0.01 0.01 0.00 0.01 0.03 0.01 0.03 0.00 0.04 0.00 0.08 0.03
0.01 0.02 0.37 0.00 0.08 0.01 0.02 0.00 0.02 0.00 0.00 0.10 0.05 0.04 0.05 0.16
0.01 0.01 0.08 0.03 0.03 0.00 0.06 0.12 0.11 0.12 0.05 0.12 0.08 0.02 0.00 0.11
0.01 0.01 0.13 0.04 0.00 0.09 0.12 0.03 0.01 0.00 0.29 0.07 0.12 0.00 0.01 0.01
0.05 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.80 0.04 0.01 0.00 0.00 0.02 0.00 0.00
0.00 0.03 0.05 0.07 0.01 0.05 0.03 0.05 0.01 0.17 0.00 0.02 0.06 0.04 0.07 0.26

ATRIX

0.06 0.06 0.08 0.12 0.17 0.23 0.26 0.39 0.46 0.47 0.49 0.66 0.67 0.78 0.86 1.00
0.01 0.03 0.06 0.17 0.19 0.32 0.48 0.52 0.54 0.58 0.70 0.72 0.77 0.80 0.98 1.00
0.36 0.40 0.41 0.42 0.45 0.50 0.53 0.60 0.61 0.60 0.66 0.67 0.68 0.78 0.82 1.00
0.04 0.06 0.21 0.23 0.28 0.30 0.34 0.40 0.43 0.54 0.55 0.57 0.58 0.60 0.71 1.00
0.02 0.02 0.03 0.04 0.06 0.15 0.24 0.34 0.37 0.40 0.43 0.58 0.66 0.70 0.99 1.00
0.05 0.07 0.08 0.08 0.11 0.13 0.17 0.21 0.24 0.26 0.27 0.29 0.32 0.98 0.98 1.00
0.00 0.38 0.39 0.41 0.43 0.43 0.45 0.53 0.60 0.60 0.62 0.65 0.71 0.73 0.82 1.00
0.04 0.06 0.25 0.34 0.48 0.50 0.57 0.62 0.64 0.64 0.69 0.71 0.72 0.76 0.82 1.00
0.00 0.23 0.37 0.37 0.44 0.46 0.48 0.49 0.53 0.56 0.85 0.86 0.87 0.93 0.97 1.00
0.01 0.04 0.05 0.06 0.12 0.20 0.20 0.38 0.40 0.47 0.49 0.50 0.64 0.67 0.88 1.00
0.37 0.68 0.69 0.69 0.71 0.72 0.73 0.75 0.78 0.80 0.83 0.83 0.88 0.88 0.97 1.00
0.01 0.04 0.41 0.42 0.50 0.52 0.54 0.54 0.57 0.58 0.59 0.69 0.74 0.78 0.84 1.00
0.01 0.02 0.11 0.15 0.18 0.19 0.25 0.37 0.48 0.60 0.66 0.78 0.86 0.88 0.89 1.00
0.01 0.03 0.16 0.21 0.22 0.31 0.43 0.46 0.47 0.48 0.76 0.84 0.96 0.97 0.99 1.00
0.05 0.05 0.06 0.06 0.07 0.07 0.09 0.09 0.89 0.94 0.95 0.96 0.96 0.99 0.99 1.00
0.00 0.03 0.09 0.17 0.18 0.24 0.28 0.33 0.35 0.52 0.52 0.55 0.62 0.66 0.74 1.00

TRANSITION MATRIX FOR SCORE = 70

TRIX

0.03	0.00	0.00	0.01	0.13	0.06	0.02	0.09	0.04	0.01	0.01	0.19	0.05	0.13	0.07	0.13
0.00	0.02	0.00	0.10	0.02	0.15	0.14	0.04	0.02	0.03	0.12	0.03	0.08	0.01	0.14	0.01
0.11	0.01	0.01	0.01	0.05	0.09	0.02	0.05	0.00	0.02	0.04	0.01	0.04	0.22	0.03	0.24
0.02	0.02	0.18	0.01	0.05	0.02	0.01	0.05	0.02	0.10	0.03	0.04	0.00	0.00	0.02	0.37
0.02	0.00	0.00	0.00	0.00	0.06	0.06	0.08	0.03	0.02	0.03	0.08	0.21	0.04	0.31	0.00
0.08	0.01	0.01	0.00	0.02	0.02	0.02	0.09	0.12	0.00	0.00	0.04	0.03	0.43	0.00	0.05
0.01	0.19	0.01	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.01	0.13	0.01	0.06	0.47
0.05	0.10	0.18	0.03	0.13	0.00	0.05	0.00	0.03	0.00	0.01	0.01	0.01	0.00	0.06	0.29
0.06	0.15	0.11	0.02	0.01	0.00	0.02	0.00	0.05	0.03	0.43	0.01	0.01	0.03	0.05	0.02
0.00	0.01	0.00	0.01	0.00	0.04	0.00	0.53	0.00	0.02	0.01	0.00	0.25	0.01	0.02	0.04
0.17	0.53	0.01	0.00	0.02	0.00	0.02	0.00	0.21	0.02	0.01	0.00	0.04	0.00	0.11	0.01
0.00	0.02	0.06	0.01	0.16	0.00	0.04	0.00	0.04	0.03	0.01	0.09	0.05	0.07	0.12	0.23
0.00	0.01	0.00	0.00	0.05	0.00	0.05	0.09	0.22	0.15	0.04	0.14	0.06	0.00	0.00	0.14
0.01	0.02	0.15	0.00	0.02	0.17	0.07	0.04	0.02	0.00	0.22	0.09	0.09	0.00	0.02	0.02
0.22	0.02	0.05	0.00	0.02	0.01	0.05	0.00	0.31	0.05	0.03	0.09	0.00	0.04	0.00	0.06
0.01	0.18	0.01	0.04	0.00	0.03	0.00	0.01	0.01	0.40	0.00	0.03	0.07	0.02	0.03	0.10

ATRIX

0.03	0.03	0.03	0.05	0.18	0.24	0.26	0.35	0.39	0.41	0.42	0.61	0.67	0.80	0.87	1.00
0.00	0.02	0.05	0.16	0.18	0.36	0.50	0.54	0.56	0.59	0.72	0.75	0.83	0.85	0.99	1.00
0.11	0.12	0.14	0.15	0.20	0.30	0.32	0.38	0.39	0.41	0.46	0.47	0.51	0.73	0.76	1.00
0.02	0.04	0.22	0.24	0.29	0.32	0.33	0.39	0.41	0.51	0.55	0.59	0.59	0.60	0.63	1.00
0.02	0.03	0.03	0.03	0.04	0.11	0.17	0.26	0.29	0.31	0.34	0.43	0.64	0.68	0.99	1.00
0.08	0.10	0.12	0.13	0.16	0.18	0.21	0.30	0.42	0.43	0.44	0.49	0.52	0.95	0.95	1.00
0.01	0.20	0.21	0.22	0.23	0.24	0.24	0.25	0.30	0.31	0.31	0.33	0.46	0.47	0.53	1.00
0.05	0.15	0.34	0.37	0.49	0.50	0.55	0.55	0.59	0.59	0.61	0.63	0.64	0.64	0.71	1.00
0.00	0.16	0.27	0.29	0.31	0.31	0.34	0.34	0.40	0.43	0.86	0.87	0.89	0.92	0.98	1.00
0.00	0.01	0.02	0.03	0.03	0.08	0.08	0.61	0.62	0.65	0.66	0.67	0.91	0.93	0.96	1.00
0.17	0.70	0.71	0.71	0.74	0.74	0.77	0.77	0.78	0.81	0.82	0.83	0.88	0.88	0.99	1.00
0.00	0.03	0.09	0.11	0.27	0.28	0.33	0.33	0.38	0.42	0.43	0.52	0.57	0.64	0.77	1.00
0.00	0.02	0.02	0.03	0.08	0.09	0.14	0.23	0.46	0.60	0.65	0.79	0.85	0.86	0.86	1.00
0.01	0.03	0.19	0.19	0.22	0.38	0.46	0.50	0.52	0.53	0.75	0.84	0.94	0.95	0.97	1.00
0.22	0.24	0.29	0.30	0.32	0.34	0.40	0.40	0.71	0.76	0.79	0.88	0.89	0.93	0.94	1.00
0.01	0.19	0.21	0.25	0.26	0.29	0.29	0.30	0.32	0.72	0.72	0.76	0.84	0.86	0.90	1.00

TRANSITION MATRIX FOR SCORE = 75

TRIX

0.06 0.00 0.00 0.01 0.04 0.07 0.02 0.11 0.03 0.00 0.05 0.09 0.06 0.21 0.05 0.16
0.02 0.02 0.02 0.05 0.02 0.15 0.12 0.03 0.02 0.03 0.09 0.03 0.06 0.02 0.17 0.03
0.57 0.00 0.00 0.02 0.02 0.03 0.01 0.09 0.00 0.01 0.00 0.00 0.00 0.07 0.00 0.12
0.02 0.02 0.21 0.02 0.09 0.03 0.05 0.04 0.04 0.07 0.04 0.03 0.00 0.02 0.01 0.23
0.03 0.00 0.00 0.00 0.02 0.08 0.05 0.09 0.03 0.04 0.03 0.27 0.11 0.03 0.17 0.00
0.03 0.00 0.00 0.01 0.01 0.01 0.01 0.05 0.03 0.00 0.00 0.02 0.03 0.72 0.00 0.00
0.01 0.36 0.01 0.01 0.01 0.00 0.00 0.01 0.07 0.00 0.01 0.01 0.07 0.02 0.08 0.27
0.07 0.04 0.21 0.03 0.09 0.02 0.07 0.00 0.01 0.01 0.05 0.02 0.00 0.00 0.04 0.28
0.01 0.29 0.23 0.00 0.02 0.01 0.01 0.00 0.04 0.02 0.21 0.01 0.01 0.00 0.04 0.04
0.00 0.00 0.00 0.00 0.01 0.03 0.00 0.06 0.00 0.02 0.01 0.00 0.74 0.01 0.03 0.03
0.42 0.26 0.01 0.00 0.03 0.01 0.02 0.00 0.00 0.02 0.01 0.01 0.06 0.00 0.08 0.03
0.00 0.01 0.74 0.00 0.03 0.00 0.00 0.00 0.01 0.00 0.02 0.02 0.01 0.01 0.04 0.04
0.01 0.01 0.07 0.01 0.03 0.01 0.04 0.08 0.19 0.11 0.03 0.11 0.06 0.07 0.00 0.12
0.00 0.00 0.07 0.01 0.00 0.00 0.06 0.02 0.01 0.00 0.23 0.06 0.38 0.00 0.01 0.02
0.01 0.00 0.00 0.00 0.02 0.00 0.04 0.00 0.72 0.01 0.01 0.02 0.00 0.06 0.01 0.02
0.01 0.07 0.07 0.02 0.01 0.04 0.04 0.02 0.00 0.22 0.00 0.05 0.12 0.15 0.03 0.11

ATRIX

0.06 0.06 0.06 0.07 0.12 0.19 0.22 0.32 0.36 0.37 0.42 0.51 0.58 0.79 0.84 1.00
0.02 0.05 0.07 0.16 0.18 0.37 0.48 0.52 0.54 0.57 0.67 0.70 0.77 0.79 0.96 1.00
0.57 0.57 0.58 0.60 0.61 0.65 0.66 0.75 0.75 0.77 0.78 0.79 0.80 0.87 0.88 1.00
0.02 0.05 0.26 0.29 0.38 0.41 0.47 0.52 0.56 0.64 0.69 0.72 0.73 0.75 0.77 1.00
0.03 0.04 0.04 0.04 0.07 0.15 0.21 0.31 0.34 0.38 0.42 0.68 0.79 0.83 0.99 1.00
0.03 0.03 0.04 0.06 0.07 0.09 0.10 0.16 0.20 0.20 0.21 0.23 0.27 0.99 0.99 1.00
0.01 0.38 0.40 0.41 0.42 0.43 0.43 0.44 0.52 0.52 0.54 0.55 0.62 0.64 0.73 1.00
0.07 0.12 0.32 0.35 0.45 0.47 0.55 0.56 0.57 0.59 0.65 0.67 0.68 0.68 0.72 1.00
0.01 0.30 0.53 0.54 0.56 0.57 0.59 0.60 0.64 0.67 0.88 0.89 0.90 0.91 0.96 1.00
0.00 0.01 0.02 0.02 0.03 0.06 0.07 0.14 0.14 0.16 0.18 0.18 0.92 0.93 0.96 1.00
0.42 0.68 0.70 0.70 0.73 0.74 0.76 0.76 0.77 0.79 0.80 0.81 0.88 0.88 0.96 1.00
0.00 0.01 0.76 0.76 0.80 0.80 0.81 0.81 0.82 0.83 0.85 0.87 0.89 0.91 0.95 1.00
0.01 0.02 0.11 0.12 0.16 0.16 0.21 0.29 0.47 0.59 0.62 0.74 0.80 0.87 0.88 1.00
0.00 0.01 0.09 0.11 0.12 0.18 0.24 0.27 0.28 0.28 0.52 0.58 0.96 0.96 0.98 1.00
0.01 0.02 0.02 0.03 0.06 0.06 0.11 0.12 0.83 0.85 0.86 0.88 0.89 0.96 0.98 1.00
0.01 0.09 0.17 0.19 0.21 0.25 0.30 0.32 0.32 0.54 0.55 0.60 0.71 0.86 0.89 1.00

TRANSITION MATRIX FOR SCORE = 80

TTRIX

0.02	0.00	0.00	0.00	0.02	0.04	0.03	0.12	0.04	0.01	0.04	0.06	0.00	0.37	0.08	0.12
0.00	0.03	0.03	0.05	0.01	0.19	0.08	0.03	0.02	0.02	0.11	0.02	0.07	0.01	0.23	0.01
0.83	0.00	0.20	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.06
0.02	0.03	0.21	0.03	0.12	0.03	0.02	0.05	0.00	0.12	0.03	0.02	0.03	0.00	0.02	0.23
0.01	0.00	0.00	0.00	0.01	0.04	0.02	0.04	0.01	0.01	0.03	0.65	0.04	0.02	0.06	0.00
0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.88	0.00	0.01
0.00	0.15	0.00	0.00	0.02	0.00	0.01	0.02	0.06	0.00	0.02	0.01	0.15	0.01	0.05	0.44
0.08	0.06	0.18	0.02	0.11	0.00	0.05	0.01	0.03	0.01	0.09	0.02	0.00	0.00	0.02	0.23
0.00	0.77	0.07	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.06	0.00	0.00	0.00	0.00	0.02
0.00	0.02	0.00	0.00	0.00	0.04	0.00	0.08	0.00	0.01	0.01	0.00	0.64	0.03	0.06	0.04
0.43	0.27	0.00	0.00	0.02	0.01	0.01	0.00	0.00	0.02	0.01	0.01	0.06	0.00	0.08	0.02
0.00	0.00	0.91	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
0.01	0.02	0.13	0.00	0.06	0.03	0.01	0.06	0.20	0.15	0.00	0.08	0.04	0.04	0.00	0.11
0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.38	0.01	0.52	0.00	0.00	0.00
0.02	0.01	0.00	0.00	0.01	0.00	0.03	0.02	0.81	0.01	0.01	0.02	0.00	0.02	0.01	0.01
0.00	0.04	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.03	0.00	0.01	0.03	0.76	0.00	0.03

ATRIX

0.02	0.02	0.03	0.03	0.06	0.11	0.14	0.26	0.30	0.32	0.36	0.43	0.43	0.80	0.88	1.00
0.00	0.03	0.07	0.16	0.17	0.36	0.45	0.49	0.51	0.53	0.64	0.67	0.74	0.76	0.99	1.00
0.83	0.83	0.83	0.84	0.84	0.85	0.86	0.88	0.89	0.90	0.90	0.90	0.91	0.93	0.94	1.00
0.02	0.06	0.27	0.30	0.42	0.45	0.48	0.53	0.53	0.66	0.68	0.71	0.74	0.75	0.77	1.00
0.01	0.01	0.02	0.02	0.04	0.07	0.09	0.14	0.16	0.17	0.21	0.85	0.90	0.93	1.00	1.00
0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.07	0.09	0.09	0.09	0.10	0.11	0.99	0.99	1.00
0.00	0.16	0.17	0.17	0.20	0.20	0.21	0.24	0.30	0.30	0.32	0.33	0.49	0.50	0.56	1.00
0.08	0.15	0.33	0.36	0.47	0.47	0.53	0.55	0.58	0.60	0.70	0.73	0.73	0.74	0.77	1.00
0.00	0.77	0.85	0.85	0.85	0.86	0.87	0.87	0.89	0.90	0.96	0.96	0.97	0.97	0.98	1.00
0.00	0.02	0.03	0.04	0.04	0.09	0.09	0.18	0.18	0.20	0.22	0.22	0.87	0.89	0.96	1.00
0.43	0.70	0.71	0.71	0.74	0.75	0.76	0.76	0.76	0.79	0.81	0.82	0.89	0.89	0.97	1.00
0.00	0.00	0.91	0.91	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.95	0.96	0.96	0.98	1.00
0.01	0.04	0.17	0.18	0.24	0.28	0.29	0.35	0.55	0.70	0.71	0.80	0.84	0.88	0.89	1.00
0.00	0.00	0.02	0.02	0.03	0.04	0.06	0.07	0.07	0.07	0.45	0.46	0.98	0.98	0.99	1.00
0.02	0.03	0.03	0.03	0.04	0.05	0.09	0.09	0.90	0.92	0.93	0.95	0.95	0.98	0.99	1.00
0.00	0.04	0.06	0.07	0.07	0.10	0.11	0.11	0.12	0.15	0.16	0.17	0.20	0.96	0.96	1.00

TRANSITION MATRIX FOR SCORE = 85

TYRIX

0.03	0.01	0.00	0.00	0.04	0.03	0.05	0.11	0.00	0.00	0.02	0.06	0.00	0.39	0.05	0.16	
0.00	0.04	0.03	0.04	0.00	0.17	0.11	0.03	0.03	0.02	0.06	0.01	0.09	0.00	0.27	0.00	
0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	0.01	0.21	0.07	0.28	0.05	0.01	0.04	0.02	0.08	0.03	0.01	0.04	0.00	0.02	0.13	
0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.01	0.00	0.02	0.76	0.08	0.00	0.02	0.00	
0.03	0.00	0.01	0.00	0.01	0.07	0.01	0.06	0.03	0.00	0.00	0.02	0.01	0.75	0.00	0.00	
0.04	0.07	0.00	0.01	0.02	0.00	0.00	0.00	0.05	0.00	0.00	0.02	0.36	0.01	0.05	0.33	
0.09	0.03	0.15	0.04	0.09	0.03	0.07	0.03	0.01	0.04	0.01	0.01	0.01	0.01	0.03	0.28	
0.00	0.85	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00	
0.35	0.24	0.00	0.00	0.03	0.02	0.02	0.00	0.00	0.13	0.01	0.02	0.02	0.02	0.05	0.04	
0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	0.00	0.87	0.00	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.25	0.00	0.01	0.00	
0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.72	0.01	0.01	0.08	0.00	0.01	0.00	0.01	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	

ATRIX

0.03	0.04	0.05	0.05	0.09	0.14	0.19	0.30	0.31	0.31	0.33	0.39	0.40	0.79	0.84	1.00	
0.00	0.07	0.11	0.16	0.16	0.33	0.44	0.48	0.51	0.53	0.60	0.61	0.71	0.72	0.99	1.00	
0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	
0.00	0.01	0.23	0.25	0.52	0.58	0.59	0.65	0.67	0.75	0.79	0.80	0.84	0.85	0.87	1.00	
0.01	0.01	0.01	0.01	0.01	0.04	0.05	0.07	0.08	0.08	0.11	0.87	0.96	0.97	0.99	1.00	
0.03	0.03	0.04	0.04	0.06	0.08	0.10	0.17	0.20	0.21	0.21	0.23	0.24	0.99	0.99	1.00	
0.02	0.10	0.11	0.12	0.14	0.15	0.15	0.15	0.21	0.21	0.22	0.24	0.60	0.61	0.67	1.00	
0.09	0.13	0.28	0.33	0.42	0.45	0.53	0.56	0.58	0.62	0.64	0.66	0.67	0.68	0.72	1.00	
0.00	0.86	0.94	0.94	0.95	0.95	0.95	0.95	0.96	0.96	0.98	0.98	0.99	0.99	1.00	1.00	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.99	1.00	1.00	1.00	
0.35	0.59	0.59	0.60	0.63	0.66	0.68	0.68	0.68	0.68	0.82	0.83	0.85	0.88	0.90	0.95	1.00
0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
0.00	0.00	0.87	0.87	0.97	0.97	0.97	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.00	
0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.73	0.73	0.98	0.98	0.99	1.00	
0.01	0.01	0.01	0.02	0.02	0.03	0.11	0.12	0.85	0.86	0.87	0.96	0.96	0.98	0.99	1.00	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	1.00	1.00	1.00	

TRANSITION MATRIX FOR SCORE = 90

TRIX

0.02 0.04 0.00 0.02 0.06 0.13 0.05 0.05 0.00 0.01 0.00 0.01 0.00 0.38 0.03 0.18
0.00 0.11 0.07 0.06 0.02 0.09 0.13 0.08 0.04 0.02 0.03 0.01 0.07 0.00 0.22 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.02 0.15 0.03 0.32 0.08 0.01 0.03 0.00 0.03 0.05 0.03 0.01 0.00 0.03 0.15
0.01 0.03 0.00 0.00 0.00 0.01 0.01 0.01 0.02 0.00 0.03 0.72 0.12 0.01 0.02 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.99 0.00 0.00
0.00 0.06 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00 0.00 0.00 0.56 0.01 0.03 0.26
0.04 0.03 0.08 0.01 0.04 0.00 0.05 0.01 0.04 0.48 0.00 0.03 0.00 0.01 0.04 0.08
0.01 0.46 0.36 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.04 0.01 0.03 0.00 0.02 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 0.00 0.00 0.96 0.00 0.00 0.00
0.29 0.17 0.02 0.05 0.05 0.00 0.03 0.01 0.01 0.02 0.04 0.01 0.10 0.02 0.11 0.03
0.00 0.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00
0.01 0.01 0.01 0.00 0.00 0.00 0.43 0.00 0.20 0.00 0.01 0.27 0.00 0.01 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 1.00 0.00 0.00

ATRIX

0.02 0.05 0.05 0.07 0.14 0.27 0.32 0.37 0.37 0.39 0.39 0.40 0.41 0.78 0.82 1.00
1.00 0.12 0.19 0.25 0.27 0.37 0.49 0.58 0.63 0.65 0.69 0.70 0.77 0.77 0.99 1.00
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
1.00 0.02 0.17 0.21 0.53 0.61 0.63 0.66 0.66 0.70 0.76 0.79 0.81 0.82 0.85 1.00
0.01 0.01 0.02 0.02 0.02 0.03 0.04 0.05 0.08 0.09 0.13 0.85 0.96 0.98 1.00 1.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.01 0.01 0.01 0.01 1.00 1.00 1.00
0.00 0.07 0.07 0.07 0.08 0.08 0.08 0.09 0.13 0.13 0.14 0.14 0.70 0.71 0.74 1.00
0.04 0.07 0.17 0.18 0.22 0.22 0.28 0.29 0.33 0.81 0.81 0.85 0.86 0.87 0.92 1.00
0.01 0.46 0.83 0.84 0.85 0.85 0.86 0.86 0.88 0.88 0.92 0.94 0.97 0.97 0.99 1.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.02 0.02 0.02 0.02 0.02 0.98 0.99 0.99 1.00
0.29 0.45 0.48 0.53 0.58 0.58 0.61 0.63 0.64 0.67 0.71 0.73 0.83 0.85 0.97 1.00
0.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
0.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 1.00 1.00 1.00 1.00
0.01 0.03 0.04 0.04 0.05 0.05 0.48 0.48 0.68 0.69 0.70 0.98 0.99 1.00 1.00 1.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 1.00 1.00 1.00

APPENDIX 14

TRANSITION AND ACCUMULATIVE MATRICES FOR VARIOUS TARGET SCORES (-1 DATA)

TRANSITION MATRIX FOR SCORE = 10

TTRIX

0.01	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.83	0.01	0.02	0.00	0.00	0.00	0.00	0.00
0.06	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.02	0.64	0.00	0.02	0.00	0.07	0.00	0.03
0.00	0.07	0.02	0.06	0.07	0.05	0.00	0.01	0.15	0.03	0.41	0.00	0.02	0.00	0.04	0.00
0.24	0.02	0.00	0.03	0.00	0.00	0.07	0.02	0.05	0.00	0.02	0.22	0.06	0.15	0.05	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.93	0.00
0.00	0.00	0.00	0.01	0.00	0.12	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.03	0.00	0.75
0.03	0.00	0.00	0.19	0.06	0.16	0.05	0.15	0.01	0.02	0.00	0.01	0.01	0.20	0.00	0.06
0.02	0.11	0.07	0.04	0.04	0.05	0.37	0.00	0.26	0.01	0.02	0.01	0.00	0.02	0.00	0.00
0.00	0.02	0.11	0.00	0.04	0.08	0.01	0.35	0.21	0.01	0.05	0.00	0.02	0.00	0.00	0.04
0.19	0.12	0.00	0.01	0.05	0.02	0.00	0.00	0.04	0.02	0.36	0.02	0.04	0.03	0.00	0.04
0.01	0.00	0.00	0.07	0.57	0.16	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.04	0.05	0.00
0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.18	0.27	0.00	0.01	0.00	0.02	0.36	0.00	0.01	0.02	0.01	0.00	0.01	0.03	0.01
0.00	0.00	0.02	0.01	0.17	0.04	0.11	0.26	0.06	0.00	0.18	0.01	0.03	0.00	0.05	0.00

ATRIX

0.01	0.01	0.07	0.08	0.10	0.11	0.11	0.11	0.94	0.96	0.98	0.99	1.00	1.00	1.00	1.00
0.06	0.06	0.07	0.08	0.12	0.12	0.17	0.18	0.21	0.84	0.85	0.87	0.88	0.96	0.97	1.00
0.00	0.07	0.10	0.16	0.24	0.30	0.31	0.31	0.46	0.50	0.91	0.92	0.94	0.95	0.99	1.00
0.24	0.26	0.26	0.29	0.29	0.29	0.37	0.39	0.44	0.45	0.48	0.70	0.76	0.91	0.97	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.07	1.00	1.00
0.00	0.01	0.01	0.02	0.03	0.15	0.15	0.17	0.18	0.18	0.19	0.19	0.21	0.25	0.25	1.00
0.03	0.04	0.04	0.23	0.29	0.45	0.50	0.65	0.67	0.70	0.70	0.72	0.73	0.93	0.94	1.00
0.02	0.13	0.20	0.25	0.29	0.30	0.66	0.67	0.92	0.94	0.96	0.97	0.97	1.00	1.00	1.00
0.00	0.03	0.14	0.14	0.19	0.28	0.29	0.64	0.85	0.87	0.92	0.93	0.95	0.95	0.96	1.00
0.19	0.31	0.32	0.33	0.38	0.40	0.41	0.41	0.46	0.48	0.85	0.87	0.91	0.95	0.95	1.00
0.01	0.02	0.02	0.09	0.67	0.82	0.84	0.85	0.86	0.86	0.88	0.89	0.90	0.94	1.00	1.00
0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.19	0.46	0.46	0.48	0.49	0.51	0.87	0.88	0.89	0.91	0.93	0.94	0.95	0.98	1.00
0.00	0.01	0.03	0.05	0.23	0.27	0.38	0.64	0.70	0.71	0.89	0.90	0.94	0.94	0.99	1.00

TRANSITION MATRIX FOR SCORE = 15

TTRIX

0.01	0.00	0.07	0.03	0.01	0.01	0.00	0.00	0.75	0.02	0.03	0.00	0.01	0.00	0.00	0.00
0.10	0.01	0.00	0.00	0.04	0.00	0.00	0.03	0.01	0.58	0.00	0.00	0.02	0.08	0.03	0.03
0.00	0.11	0.03	0.08	0.14	0.03	0.03	0.00	0.15	0.08	0.25	0.01	0.02	0.01	0.02	0.00
0.33	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.48	0.02	0.05	0.02	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
0.01	0.02	0.01	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.88
0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
0.01	0.01	0.00	0.25	0.03	0.15	0.03	0.11	0.00	0.05	0.01	0.00	0.00	0.23	0.00	0.05
0.01	0.07	0.06	0.04	0.04	0.00	0.27	0.01	0.38	0.01	0.01	0.01	0.00	0.00	0.02	0.00
0.00	0.00	0.13	0.00	0.02	0.08	0.02	0.33	0.29	0.02	0.02	0.00	0.01	0.00	0.00	0.04
0.12	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.01	0.68	0.02	0.02	0.01	0.00	0.02
0.03	0.01	0.00	0.06	0.12	0.37	0.07	0.01	0.01	0.02	0.03	0.01	0.02	0.14	0.04	0.00
0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.23	0.29	0.00	0.04	0.00	0.01	0.21	0.00	0.00	0.04	0.00	0.00	0.01	0.08	0.02
0.00	0.00	0.01	0.03	0.12	0.02	0.11	0.37	0.04	0.01	0.19	0.00	0.01	0.00	0.01	0.02

ATRIX

0.01	0.01	0.08	0.13	0.14	0.15	0.16	0.16	0.92	0.94	0.97	0.98	0.99	1.00	1.00	1.00
0.10	0.12	0.13	0.13	0.17	0.18	0.18	0.22	0.23	0.81	0.82	0.82	0.84	0.93	0.96	1.00
0.00	0.12	0.15	0.23	0.37	0.40	0.43	0.43	0.58	0.67	0.91	0.93	0.96	0.97	1.00	1.00
0.33	0.34	0.34	0.35	0.35	0.36	0.38	0.39	0.40	0.41	0.41	0.89	0.92	0.97	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.99	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
0.01	0.02	0.03	0.03	0.05	0.05	0.07	0.08	0.08	0.08	0.09	0.12	0.12	0.12	1.00	1.00
0.00	0.01	0.01	0.01	0.02	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.11	0.12	0.12	1.00
0.01	0.03	0.03	0.29	0.32	0.48	0.52	0.63	0.64	0.69	0.70	0.71	0.72	0.94	0.95	1.00
0.01	0.09	0.15	0.20	0.24	0.24	0.52	0.53	0.92	0.93	0.95	0.96	0.97	0.97	0.99	1.00
0.00	0.00	0.14	0.14	0.16	0.24	0.26	0.60	0.68	0.90	0.93	0.94	0.95	0.95	0.96	1.00
0.12	0.17	0.17	0.18	0.18	0.19	0.19	0.20	0.22	0.23	0.92	0.94	0.96	0.97	0.98	1.00
0.03	0.05	0.05	0.12	0.24	0.61	0.69	0.70	0.72	0.74	0.77	0.78	0.80	0.95	1.00	1.00
0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.02	0.26	0.55	0.55	0.59	0.60	0.61	0.82	0.83	0.83	0.87	0.88	0.88	0.90	0.98	1.00
0.00	0.00	0.02	0.06	0.18	0.20	0.32	0.69	0.74	0.75	0.94	0.95	0.96	0.97	0.98	1.00

TRANSITION MATRIX FOR SCORE = 20

TRIX

0.01	0.02	0.08	0.04	0.01	0.01	0.00	0.02	0.69	0.03	0.02	0.00	0.01	0.00	0.00	0.00
0.14	0.00	0.02	0.02	0.05	0.01	0.05	0.03	0.01	0.37	0.02	0.01	0.02	0.13	0.01	0.04
0.00	0.00	0.03	0.05	0.13	0.00	0.04	0.00	0.23	0.04	0.25	0.00	0.02	0.00	0.02	0.01
0.12	0.01	0.00	0.01	0.01	0.01	0.07	0.03	0.05	0.02	0.02	0.23	0.09	0.19	0.07	0.00
0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.87	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.93
0.01	0.00	0.00	0.39	0.07	0.15	0.06	0.08	0.01	0.02	0.00	0.00	0.00	0.13	0.00	0.02
0.01	0.02	0.03	0.03	0.04	0.01	0.08	0.00	0.70	0.00	0.01	0.00	0.00	0.00	0.00	0.01
0.00	0.00	0.05	0.00	0.02	0.06	0.01	0.17	0.58	0.01	0.02	0.00	0.01	0.00	0.00	0.01
0.13	0.05	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.01	0.67	0.01	0.01	0.02	0.00	0.00
0.01	0.01	0.00	0.07	0.07	0.34	0.05	0.03	0.01	0.00	0.04	0.00	0.05	0.15	0.02	0.09
0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.13	0.47	0.00	0.04	0.00	0.00	0.19	0.00	0.03	0.01	0.00	0.00	0.01	0.06	0.02
0.00	0.01	0.00	0.02	0.22	0.05	0.16	0.09	0.04	0.05	0.24	0.00	0.03	0.00	0.01	0.01

ATRIX

0.01	0.02	0.10	0.15	0.17	0.18	0.19	0.21	0.90	0.93	0.96	0.97	0.98	0.98	0.99	1.00
0.14	0.15	0.18	0.20	0.26	0.27	0.32	0.36	0.37	0.74	0.77	0.78	0.81	0.94	0.95	1.00
0.00	0.11	0.14	0.20	0.33	0.34	0.39	0.39	0.62	0.67	0.92	0.93	0.96	0.96	0.99	1.00
0.12	0.14	0.14	0.16	0.17	0.19	0.27	0.30	0.35	0.38	0.41	0.64	0.74	0.92	1.00	1.00
0.00	0.00	0.01	0.02	0.04	0.04	0.06	0.07	0.07	0.08	0.09	0.09	0.98	0.98	0.99	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
0.00	0.01	0.02	0.02	0.04	0.04	0.07	0.08	0.08	0.08	0.10	0.12	0.12	0.13	1.00	1.00
0.00	0.00	0.01	0.01	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.07	1.00
0.01	0.02	0.02	0.41	0.49	0.65	0.71	0.79	0.80	0.82	0.82	0.83	0.84	0.97	0.97	1.00
0.01	0.03	0.07	0.11	0.15	0.17	0.25	0.25	0.95	0.96	0.97	0.97	0.98	0.98	0.98	1.00
0.00	0.00	0.06	0.06	0.08	0.15	0.16	0.34	0.92	0.93	0.96	0.96	0.97	0.98	0.99	1.00
0.13	0.19	0.19	0.19	0.22	0.23	0.23	0.23	0.25	0.27	0.94	0.95	0.96	0.99	0.99	1.00
0.01	0.02	0.03	0.11	0.18	0.52	0.58	0.62	0.63	0.63	0.67	0.68	0.73	0.88	0.90	1.00
0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.01	0.14	0.60	0.60	0.64	0.65	0.65	0.84	0.84	0.88	0.89	0.90	0.90	0.91	0.98	1.00
0.00	0.01	0.02	0.04	0.27	0.32	0.48	0.58	0.62	0.68	0.92	0.93	0.96	0.97	0.98	1.00

TRANSITION MATRIX FOR SCORE = 25

TTRIX

0.04	0.00	0.39	0.06	0.03	0.00	0.01	0.03	0.25	0.04	0.05	0.01	0.01	0.00	0.02	0.01
0.19	0.00	0.02	0.01	0.04	0.00	0.05	0.01	0.01	0.35	0.01	0.02	0.02	0.14	0.03	0.04
0.00	0.05	0.02	0.03	0.12	0.01	0.03	0.00	0.07	0.03	0.51	0.00	0.02	0.01	0.02	0.01
0.07	0.01	0.00	0.02	0.02	0.00	0.12	0.03	0.11	0.04	0.03	0.15	0.14	0.08	0.14	0.00
0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.91	0.00	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
0.01	0.00	0.01	0.00	0.01	0.00	0.08	0.02	0.00	0.00	0.02	0.03	0.00	0.00	0.76	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
0.00	0.01	0.00	0.35	0.12	0.14	0.06	0.06	0.00	0.03	0.02	0.00	0.00	0.10	0.02	0.02
0.01	0.04	0.07	0.03	0.05	0.02	0.29	0.00	0.38	0.01	0.01	0.00	0.00	0.01	0.00	0.01
0.00	0.00	0.02	0.00	0.00	0.07	0.01	0.50	0.27	0.01	0.03	0.00	0.01	0.00	0.01	0.02
0.22	0.11	0.00	0.00	0.02	0.01	0.01	0.00	0.04	0.03	0.36	0.02	0.01	0.05	0.04	0.01
0.01	0.00	0.00	0.06	0.04	0.46	0.05	0.03	0.01	0.01	0.07	0.01	0.01	0.14	0.01	0.02
0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.16	0.27	0.00	0.07	0.00	0.01	0.16	0.03	0.03	0.03	0.00	0.00	0.03	0.14	0.02
0.00	0.00	0.00	0.01	0.06	0.03	0.19	0.07	0.03	0.00	0.51	0.00	0.01	0.00	0.01	0.01

ATRIX

0.04	0.04	0.43	0.50	0.54	0.54	0.55	0.59	0.84	0.87	0.93	0.94	0.96	0.96	0.99	1.00
0.19	0.20	0.22	0.24	0.28	0.29	0.34	0.36	0.37	0.72	0.73	0.76	0.78	0.92	0.95	1.00
0.00	0.06	0.08	0.12	0.24	0.26	0.29	0.30	0.38	0.41	0.93	0.93	0.95	0.97	0.99	1.00
0.07	0.09	0.10	0.12	0.15	0.15	0.28	0.31	0.42	0.46	0.49	0.64	0.77	0.86	1.00	1.00
0.00	0.00	0.00	0.01	0.03	0.03	0.04	0.04	0.06	0.07	0.07	0.07	0.98	0.99	0.99	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00
0.01	0.01	0.03	0.04	0.06	0.06	0.15	0.18	0.18	0.18	0.21	0.24	0.24	0.24	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	1.00
0.00	0.02	0.02	0.38	0.50	0.64	0.70	0.76	0.77	0.81	0.83	0.84	0.84	0.95	0.97	1.00
0.01	0.05	0.14	0.17	0.23	0.25	0.54	0.54	0.92	0.93	0.95	0.96	0.97	0.98	0.99	1.00
0.00	0.00	0.03	0.03	0.03	0.12	0.13	0.63	0.89	0.90	0.94	0.94	0.95	0.95	0.97	1.00
0.22	0.33	0.34	0.34	0.37	0.39	0.41	0.41	0.46	0.49	0.85	0.87	0.89	0.94	0.99	1.00
0.01	0.02	0.03	0.09	0.15	0.61	0.66	0.69	0.70	0.72	0.79	0.80	0.82	0.96	0.98	1.00
0.00	0.00	0.00	0.01	0.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00
0.01	0.17	0.45	0.45	0.52	0.53	0.54	0.70	0.73	0.76	0.80	0.81	0.81	0.84	0.98	1.00
0.00	0.00	0.01	0.02	0.09	0.13	0.32	0.40	0.43	0.44	0.95	0.96	0.97	0.97	0.99	1.00

TRANSITION MATRIX FOR SCORE = 30

TTRIX

0.03	0.00	0.46	0.09	0.03	0.01	0.01	0.01	0.17	0.03	0.06	0.02	0.01	0.00	0.00	0.00
0.28	0.01	0.02	0.06	0.06	0.03	0.04	0.01	0.02	0.11	0.04	0.02	0.01	0.17	0.01	0.05
0.01	0.13	0.05	0.08	0.11	0.03	0.06	0.02	0.11	0.14	0.02	0.01	0.08	0.02	0.06	0.01
0.14	0.01	0.02	0.02	0.02	0.01	0.10	0.03	0.15	0.03	0.05	0.03	0.10	0.06	0.14	0.03
0.03	0.04	0.02	0.08	0.20	0.01	0.03	0.06	0.05	0.13	0.06	0.08	0.02	0.03	0.02	0.08
0.00	0.13	0.03	0.31	0.01	0.01	0.12	0.00	0.00	0.07	0.07	0.02	0.05	0.01	0.00	0.10
0.07	0.01	0.05	0.02	0.07	0.00	0.32	0.15	0.00	0.01	0.11	0.12	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.03	0.01	0.46	0.01	0.03	0.01	0.00	0.01	0.00	0.01	0.11	0.03	0.20
0.00	0.00	0.00	0.13	0.21	0.25	0.12	0.03	0.02	0.04	0.00	0.01	0.00	0.07	0.02	0.04
0.01	0.08	0.03	0.03	0.06	0.01	0.07	0.00	0.61	0.01	0.01	0.01	0.00	0.00	0.01	0.00
0.00	0.00	0.03	0.00	0.03	0.12	0.01	0.49	0.16	0.01	0.04	0.00	0.01	0.00	0.01	0.03
0.49	0.07	0.00	0.00	0.03	0.01	0.00	0.00	0.02	0.02	0.17	0.03	0.03	0.02	0.01	0.05
0.02	0.03	0.02	0.10	0.04	0.12	0.09	0.03	0.00	0.01	0.12	0.01	0.09	0.21	0.02	0.04
0.11	0.03	0.03	0.19	0.15	0.04	0.04	0.05	0.10	0.00	0.03	0.04	0.02	0.11	0.02	0.00
0.01	0.14	0.00	0.00	0.13	0.00	0.01	0.29	0.02	0.03	0.04	0.00	0.00	0.04	0.18	0.05
0.00	0.00	0.01	0.03	0.06	0.04	0.46	0.08	0.03	0.01	0.14	0.00	0.03	0.01	0.01	0.02

ATRIX

0.03	0.04	0.50	0.60	0.63	0.64	0.65	0.66	0.83	0.87	0.94	0.96	0.98	0.99	0.99	1.00
0.28	0.30	0.33	0.39	0.45	0.49	0.53	0.54	0.56	0.68	0.72	0.74	0.76	0.93	0.94	1.00
0.01	0.15	0.21	0.29	0.40	0.43	0.49	0.51	0.63	0.76	0.79	0.81	0.90	0.92	0.98	1.00
0.14	0.15	0.18	0.21	0.23	0.25	0.35	0.39	0.54	0.57	0.62	0.65	0.76	0.82	0.96	1.00
0.03	0.08	0.10	0.19	0.39	0.40	0.43	0.50	0.55	0.69	0.75	0.83	0.85	0.89	0.92	1.00
0.00	0.13	0.17	0.48	0.50	0.52	0.64	0.64	0.65	0.72	0.80	0.82	0.88	0.89	0.90	1.00
0.07	0.08	0.14	0.17	0.25	0.25	0.57	0.72	0.73	0.75	0.86	0.98	0.98	0.99	1.00	1.00
0.00	0.05	0.06	0.09	0.10	0.56	0.58	0.61	0.62	0.62	0.64	0.65	0.67	0.77	0.80	1.00
0.00	0.01	0.02	0.15	0.36	0.61	0.73	0.77	0.79	0.83	0.83	0.84	0.85	0.93	0.96	1.00
0.01	0.09	0.13	0.16	0.23	0.24	0.32	0.32	0.93	0.95	0.97	0.98	0.98	0.99	1.00	1.00
0.00	0.01	0.04	0.04	0.08	0.20	0.22	0.70	0.86	0.88	0.92	0.93	0.95	0.95	0.96	1.00
0.49	0.56	0.57	0.57	0.60	0.62	0.62	0.63	0.65	0.67	0.85	0.88	0.91	0.93	0.95	1.00
0.02	0.05	0.08	0.18	0.22	0.34	0.43	0.46	0.47	0.48	0.60	0.62	0.71	0.93	0.95	1.00
0.11	0.14	0.17	0.36	0.51	0.55	0.60	0.65	0.76	0.76	0.79	0.84	0.86	0.97	0.99	1.00
0.01	0.15	0.16	0.16	0.30	0.30	0.32	0.61	0.63	0.67	0.71	0.72	0.72	0.76	0.95	1.00
0.00	0.00	0.01	0.05	0.11	0.16	0.62	0.70	0.74	0.76	0.90	0.90	0.94	0.96	0.97	1.00

TRANSITION MATRIX FOR SCORE = 35

TTRIX

0.07	0.00	0.18	0.13	0.07	0.05	0.01	0.04	0.09	0.05	0.08	0.05	0.02	0.05	0.02	0.03
0.09	0.01	0.02	0.05	0.04	0.05	0.05	0.02	0.01	0.24	0.08	0.01	0.04	0.12	0.07	0.04
0.01	0.11	0.03	0.05	0.12	0.03	0.05	0.03	0.08	0.06	0.13	0.01	0.03	0.08	0.07	0.05
0.04	0.01	0.03	0.02	0.02	0.01	0.08	0.05	0.14	0.07	0.05	0.04	0.09	0.04	0.12	0.12
0.02	0.01	0.00	0.01	0.05	0.07	0.02	0.09	0.04	0.09	0.01	0.16	0.21	0.09	0.03	0.01
0.02	0.04	0.01	0.14	0.04	0.01	0.11	0.06	0.07	0.03	0.02	0.01	0.04	0.28	0.00	0.05
0.03	0.02	0.04	0.01	0.08	0.00	0.16	0.14	0.03	0.00	0.09	0.06	0.01	0.01	0.25	0.01
0.02	0.09	0.02	0.08	0.05	0.12	0.02	0.04	0.01	0.00	0.04	0.00	0.02	0.11	0.03	0.31
0.01	0.01	0.02	0.14	0.17	0.11	0.16	0.02	0.03	0.03	0.15	0.00	0.00	0.05	0.03	0.02
0.01	0.02	0.04	0.04	0.06	0.02	0.31	0.01	0.31	0.00	0.01	0.00	0.03	0.01	0.03	0.03
0.04	0.12	0.02	0.00	0.04	0.16	0.02	0.11	0.20	0.03	0.07	0.00	0.05	0.00	0.05	0.04
0.15	0.09	0.01	0.00	0.04	0.01	0.01	0.00	0.03	0.02	0.31	0.07	0.04	0.04	0.01	0.09
0.01	0.01	0.01	0.06	0.02	0.21	0.06	0.06	0.02	0.00	0.09	0.06	0.06	0.14	0.01	0.11
0.06	0.02	0.07	0.16	0.06	0.11	0.09	0.03	0.05	0.00	0.02	0.05	0.08	0.12	0.01	0.01
0.02	0.06	0.19	0.00	0.08	0.00	0.00	0.23	0.06	0.04	0.03	0.00	0.00	0.04	0.16	0.03
0.00	0.01	0.01	0.12	0.09	0.07	0.15	0.07	0.04	0.02	0.23	0.01	0.08	0.01	0.02	0.02

ATRIX

0.07	0.07	0.25	0.38	0.46	0.51	0.53	0.57	0.67	0.73	0.81	0.86	0.89	0.94	0.97	1.00
0.09	0.11	0.13	0.19	0.23	0.29	0.35	0.37	0.39	0.62	0.71	0.72	0.77	0.89	0.96	1.00
0.01	0.13	0.16	0.21	0.34	0.37	0.42	0.45	0.53	0.60	0.73	0.74	0.78	0.87	0.95	1.00
0.04	0.06	0.09	0.12	0.15	0.16	0.25	0.30	0.44	0.51	0.57	0.62	0.71	0.76	0.88	1.00
0.02	0.03	0.03	0.05	0.11	0.19	0.22	0.32	0.36	0.45	0.47	0.64	0.85	0.95	0.98	1.00
0.02	0.07	0.08	0.23	0.27	0.29	0.40	0.47	0.54	0.58	0.61	0.62	0.66	0.94	0.94	1.00
0.03	0.06	0.11	0.13	0.21	0.22	0.38	0.52	0.55	0.56	0.65	0.71	0.72	0.74	0.99	1.00
0.02	0.11	0.14	0.22	0.28	0.40	0.42	0.46	0.48	0.48	0.52	0.53	0.55	0.66	0.69	1.00
0.01	0.02	0.04	0.15	0.36	0.47	0.63	0.65	0.69	0.72	0.87	0.88	0.89	0.94	0.97	1.00
0.01	0.03	0.08	0.12	0.18	0.21	0.52	0.54	0.85	0.86	0.88	0.89	0.92	0.93	0.97	1.00
0.04	0.16	0.19	0.19	0.23	0.39	0.41	0.53	0.73	0.76	0.83	0.84	0.90	0.90	0.95	1.00
0.15	0.25	0.27	0.27	0.32	0.34	0.35	0.35	0.39	0.42	0.73	0.80	0.85	0.89	0.91	1.00
0.01	0.02	0.04	0.11	0.14	0.34	0.41	0.47	0.50	0.51	0.60	0.67	0.74	0.87	0.89	1.00
0.06	0.08	0.16	0.32	0.38	0.49	0.58	0.62	0.68	0.68	0.71	0.76	0.85	0.97	0.99	1.00
0.02	0.09	0.29	0.29	0.37	0.37	0.38	0.61	0.68	0.72	0.76	0.76	0.77	0.81	0.97	1.00
0.00	0.01	0.03	0.15	0.24	0.32	0.47	0.54	0.59	0.61	0.84	0.85	0.94	0.95	0.98	1.00

TRANSITION MATRIX FOR SCORE = 40

TTRIX

0.09	0.00	0.07	0.13	0.09	0.06	0.01	0.05	0.01	0.09	0.10	0.08	0.05	0.02	0.05	0.04
0.09	0.01	0.02	0.12	0.07	0.03	0.06	0.02	0.01	0.06	0.18	0.03	0.03	0.10	0.04	0.06
0.07	0.03	0.01	0.04	0.06	0.04	0.03	0.02	0.03	0.04	0.32	0.00	0.02	0.12	0.07	0.05
0.01	0.01	0.04	0.02	0.05	0.01	0.07	0.07	0.16	0.06	0.06	0.01	0.11	0.03	0.22	0.01
0.06	0.02	0.01	0.03	0.11	0.07	0.06	0.05	0.03	0.24	0.04	0.00	0.05	0.11	0.03	0.02
0.01	0.06	0.02	0.08	0.05	0.06	0.19	0.06	0.04	0.03	0.07	0.01	0.13	0.00	0.00	0.13
0.05	0.01	0.05	0.02	0.13	0.00	0.08	0.19	0.01	0.00	0.11	0.07	0.08	0.02	0.06	0.05
0.02	0.12	0.04	0.09	0.03	0.20	0.04	0.05	0.01	0.00	0.04	0.00	0.02	0.23	0.05	0.00
0.00	0.02	0.00	0.33	0.15	0.12	0.16	0.03	0.01	0.03	0.02	0.00	0.00	0.05	0.02	0.02
0.01	0.04	0.09	0.06	0.06	0.04	0.10	0.03	0.37	0.05	0.02	0.01	0.00	0.00	0.02	0.05
0.05	0.01	0.01	0.00	0.02	0.08	0.01	0.19	0.42	0.01	0.04	0.00	0.06	0.00	0.02	0.02
0.05	0.05	0.04	0.00	0.04	0.01	0.01	0.00	0.03	0.02	0.51	0.05	0.03	0.04	0.01	0.04
0.01	0.01	0.04	0.07	0.03	0.14	0.06	0.03	0.03	0.00	0.09	0.14	0.05	0.13	0.01	0.10
0.08	0.02	0.08	0.18	0.07	0.07	0.11	0.05	0.05	0.00	0.01	0.09	0.02	0.11	0.01	0.01
0.04	0.07	0.03	0.00	0.11	0.00	0.00	0.02	0.00	0.09	0.05	0.00	0.00	0.05	0.43	0.05
0.00	0.01	0.02	0.13	0.18	0.09	0.04	0.18	0.04	0.01	0.04	0.01	0.13	0.00	0.03	0.03

ATRIX

0.09	0.09	0.17	0.30	0.39	0.46	0.48	0.53	0.54	0.63	0.74	0.82	0.88	0.90	0.95	1.00
0.09	0.11	0.14	0.26	0.34	0.38	0.44	0.46	0.48	0.54	0.73	0.76	0.79	0.90	0.94	1.00
0.07	0.10	0.12	0.17	0.24	0.28	0.32	0.34	0.37	0.41	0.73	0.74	0.76	0.87	0.95	1.00
0.01	0.02	0.07	0.10	0.16	0.17	0.24	0.32	0.48	0.54	0.60	0.62	0.73	0.77	0.99	1.00
0.06	0.09	0.10	0.14	0.25	0.33	0.39	0.45	0.49	0.73	0.77	0.78	0.83	0.94	0.97	1.00
0.01	0.08	0.11	0.20	0.25	0.31	0.50	0.56	0.61	0.64	0.72	0.73	0.86	0.86	0.87	1.00
0.05	0.06	0.12	0.15	0.28	0.28	0.37	0.56	0.58	0.58	0.70	0.77	0.86	0.88	0.94	1.00
0.02	0.15	0.19	0.29	0.32	0.53	0.57	0.62	0.64	0.64	0.68	0.69	0.71	0.94	0.99	1.00
0.00	0.03	0.03	0.37	0.52	0.64	0.80	0.83	0.84	0.87	0.89	0.90	0.90	0.95	0.98	1.00
0.01	0.06	0.15	0.21	0.27	0.31	0.42	0.45	0.82	0.87	0.89	0.91	0.91	0.92	0.94	1.00
0.05	0.06	0.08	0.08	0.10	0.19	0.21	0.39	0.81	0.83	0.87	0.88	0.95	0.95	0.97	1.00
0.05	0.11	0.15	0.16	0.20	0.22	0.23	0.23	0.27	0.30	0.80	0.86	0.90	0.94	0.95	1.00
0.01	0.02	0.07	0.14	0.17	0.32	0.39	0.43	0.46	0.47	0.56	0.70	0.76	0.89	0.90	1.00
0.08	0.10	0.18	0.36	0.43	0.51	0.62	0.67	0.72	0.72	0.74	0.83	0.86	0.97	0.99	1.00
0.04	0.12	0.15	0.15	0.26	0.27	0.28	0.30	0.31	0.40	0.46	0.46	0.47	0.52	0.95	1.00
0.00	0.02	0.04	0.17	0.36	0.45	0.49	0.68	0.72	0.74	0.78	0.80	0.93	0.94	0.97	1.00

TRANSITION MATRIX FOR SCORE = 45

TTRIX

0.07	0.00	0.07	0.08	0.07	0.05	0.01	0.08	0.09	0.05	0.07	0.12	0.02	0.05	0.04	0.06
0.11	0.01	0.02	0.08	0.04	0.11	0.09	0.02	0.01	0.10	0.08	0.02	0.04	0.09	0.07	0.04
0.08	0.05	0.02	0.04	0.08	0.08	0.05	0.05	0.05	0.04	0.07	0.00	0.03	0.11	0.11	0.08
0.04	0.01	0.09	0.02	0.04	0.01	0.06	0.06	0.12	0.11	0.05	0.04	0.08	0.04	0.09	0.10
0.02	0.00	0.00	0.01	0.04	0.11	0.12	0.11	0.03	0.07	0.03	0.12	0.08	0.06	0.14	0.01
0.08	0.04	0.02	0.10	0.04	0.03	0.13	0.06	0.07	0.02	0.02	0.02	0.11	0.12	0.00	0.08
0.03	0.13	0.04	0.01	0.08	0.00	0.08	0.13	0.05	0.00	0.07	0.05	0.00	0.02	0.08	0.11
0.02	0.13	0.08	0.11	0.09	0.08	0.04	0.05	0.01	0.00	0.05	0.00	0.02	0.09	0.06	0.11
0.00	0.07	0.04	0.11	0.14	0.11	0.16	0.02	0.03	0.03	0.15	0.00	0.00	0.04	0.03	0.02
0.01	0.03	0.04	0.05	0.08	0.06	0.12	0.06	0.11	0.07	0.02	0.01	0.11	0.01	0.05	0.10
0.13	0.09	0.02	0.00	0.03	0.11	0.02	0.09	0.11	0.03	0.06	0.00	0.09	0.00	0.13	0.04
0.12	0.09	0.11	0.00	0.07	0.01	0.01	0.00	0.03	0.02	0.14	0.09	0.04	0.05	0.03	0.13
0.01	0.01	0.03	0.05	0.02	0.12	0.06	0.11	0.08	0.05	0.07	0.08	0.08	0.09	0.01	0.09
0.04	0.01	0.12	0.10	0.04	0.09	0.12	0.03	0.03	0.00	0.09	0.12	0.07	0.07	0.01	0.01
0.10	0.09	0.09	0.00	0.09	0.00	0.01	0.08	0.08	0.12	0.05	0.01	0.00	0.06	0.11	0.04
0.00	0.01	0.01	0.13	0.07	0.07	0.10	0.05	0.04	0.05	0.13	0.01	0.14	0.01	0.02	0.12

ATRIX

0.07	0.07	0.15	0.23	0.30	0.36	0.37	0.46	0.55	0.61	0.69	0.81	0.83	0.88	0.93	1.00
0.11	0.12	0.14	0.23	0.27	0.38	0.48	0.51	0.52	0.63	0.71	0.74	0.78	0.88	0.96	1.00
0.08	0.14	0.17	0.21	0.29	0.37	0.42	0.47	0.52	0.57	0.65	0.66	0.69	0.80	0.91	1.00
0.04	0.05	0.15	0.17	0.21	0.23	0.29	0.35	0.47	0.58	0.63	0.67	0.76	0.80	0.90	1.00
0.02	0.03	0.04	0.05	0.09	0.21	0.33	0.44	0.47	0.55	0.58	0.70	0.78	0.85	0.99	1.00
0.08	0.13	0.15	0.25	0.30	0.34	0.46	0.53	0.60	0.63	0.66	0.69	0.80	0.92	0.92	1.00
0.03	0.16	0.21	0.22	0.30	0.31	0.39	0.52	0.58	0.59	0.66	0.72	0.78	0.80	0.89	1.00
0.02	0.15	0.23	0.34	0.44	0.52	0.57	0.62	0.64	0.64	0.69	0.70	0.73	0.83	0.89	1.00
0.00	0.07	0.12	0.24	0.37	0.48	0.64	0.67	0.70	0.73	0.89	0.89	0.90	0.94	0.98	1.00
0.01	0.05	0.10	0.16	0.24	0.31	0.43	0.49	0.60	0.67	0.70	0.71	0.82	0.84	0.90	1.00
0.13	0.22	0.25	0.25	0.28	0.40	0.42	0.51	0.62	0.66	0.72	0.73	0.82	0.82	0.95	1.00
0.12	0.21	0.33	0.33	0.40	0.42	0.43	0.44	0.47	0.50	0.64	0.73	0.78	0.83	0.87	1.00
0.01	0.02	0.05	0.11	0.13	0.25	0.31	0.42	0.50	0.56	0.63	0.72	0.80	0.90	0.91	1.00
0.04	0.05	0.18	0.28	0.33	0.42	0.54	0.58	0.61	0.61	0.71	0.83	0.90	0.98	0.99	1.00
0.10	0.20	0.30	0.30	0.40	0.40	0.42	0.50	0.59	0.71	0.76	0.77	0.78	0.84	0.95	1.00
0.00	0.01	0.03	0.16	0.24	0.31	0.41	0.47	0.51	0.56	0.69	0.70	0.84	0.85	0.88	1.00

TRANSITION MATRIX FOR SCORE = 50

TTRIX

0.07	0.00	0.07	0.08	0.07	0.05	0.01	0.08	0.09	0.05	0.07	0.12	0.02	0.05	0.04	0.06
0.11	0.01	0.02	0.03	0.04	0.11	0.09	0.02	0.01	0.10	0.08	0.02	0.04	0.09	0.07	0.04
0.08	0.05	0.02	0.04	0.08	0.08	0.05	0.05	0.05	0.04	0.07	0.00	0.03	0.11	0.11	0.08
0.04	0.01	0.09	0.02	0.04	0.01	0.06	0.06	0.12	0.11	0.05	0.04	0.08	0.04	0.09	0.10
0.02	0.00	0.00	0.01	0.04	0.11	0.12	0.11	0.03	0.07	0.03	0.12	0.08	0.06	0.14	0.01
0.08	0.04	0.02	0.10	0.04	0.03	0.13	0.06	0.07	0.02	0.02	0.02	0.11	0.12	0.00	0.08
0.03	0.13	0.04	0.01	0.08	0.00	0.08	0.13	0.05	0.00	0.07	0.05	0.06	0.02	0.08	0.11
0.02	0.13	0.08	0.11	0.09	0.08	0.04	0.05	0.01	0.00	0.05	0.00	0.02	0.09	0.06	0.11
0.00	0.07	0.04	0.11	0.14	0.11	0.16	0.02	0.03	0.03	0.15	0.00	0.00	0.04	0.03	0.02
0.01	0.03	0.04	0.05	0.08	0.06	0.12	0.06	0.11	0.07	0.02	0.01	0.11	0.01	0.05	0.10
0.13	0.09	0.02	0.00	0.03	0.11	0.02	0.09	0.11	0.03	0.06	0.00	0.09	0.00	0.13	0.04
0.12	0.09	0.11	0.00	0.07	0.01	0.01	0.00	0.03	0.02	0.14	0.09	0.04	0.05	0.03	0.13
0.01	0.01	0.03	0.05	0.02	0.12	0.06	0.11	0.08	0.05	0.07	0.08	0.08	0.09	0.01	0.09
0.04	0.01	0.12	0.10	0.04	0.09	0.12	0.03	0.03	0.00	0.09	0.12	0.07	0.07	0.01	0.01
0.10	0.09	0.09	0.00	0.09	0.00	0.01	0.08	0.08	0.12	0.05	0.01	0.00	0.06	0.11	0.04
0.00	0.01	0.01	0.13	0.07	0.07	0.10	0.05	0.04	0.05	0.13	0.01	0.14	0.01	0.02	0.12

ATRIX

0.07	0.07	0.15	0.23	0.30	0.36	0.37	0.46	0.55	0.61	0.69	0.81	0.83	0.88	0.93	1.00
0.11	0.12	0.14	0.23	0.27	0.38	0.48	0.51	0.52	0.63	0.71	0.74	0.78	0.88	0.96	1.00
0.08	0.14	0.17	0.21	0.29	0.37	0.42	0.47	0.52	0.57	0.65	0.66	0.69	0.80	0.91	1.00
0.04	0.05	0.15	0.17	0.21	0.23	0.29	0.35	0.47	0.58	0.63	0.67	0.76	0.80	0.90	1.00
0.02	0.03	0.04	0.05	0.09	0.21	0.33	0.44	0.47	0.55	0.58	0.70	0.78	0.85	0.89	1.00
0.08	0.13	0.15	0.25	0.30	0.34	0.46	0.53	0.60	0.63	0.66	0.69	0.80	0.92	0.92	1.00
0.03	0.16	0.21	0.22	0.30	0.31	0.39	0.52	0.58	0.59	0.66	0.72	0.78	0.80	0.89	1.00
0.02	0.15	0.23	0.34	0.44	0.52	0.57	0.62	0.64	0.64	0.69	0.70	0.73	0.83	0.89	1.00
0.00	0.07	0.12	0.24	0.37	0.48	0.64	0.67	0.70	0.73	0.89	0.89	0.90	0.94	0.98	1.00
0.01	0.05	0.10	0.16	0.24	0.31	0.43	0.49	0.60	0.67	0.70	0.71	0.82	0.84	0.90	1.00
0.13	0.22	0.25	0.25	0.28	0.40	0.42	0.51	0.62	0.66	0.72	0.73	0.82	0.82	0.95	1.00
0.12	0.21	0.33	0.33	0.40	0.42	0.43	0.44	0.47	0.50	0.64	0.73	0.78	0.83	0.87	1.00
0.01	0.02	0.05	0.11	0.13	0.25	0.31	0.42	0.50	0.56	0.63	0.72	0.80	0.90	0.91	1.00
0.04	0.05	0.18	0.28	0.33	0.42	0.54	0.58	0.61	0.61	0.71	0.83	0.90	0.98	0.99	1.00
0.10	0.20	0.30	0.30	0.40	0.40	0.42	0.50	0.59	0.71	0.76	0.77	0.78	0.84	0.95	1.00
0.00	0.01	0.03	0.16	0.24	0.31	0.41	0.47	0.51	0.56	0.69	0.70	0.84	0.85	0.88	1.00

TRANSITION MATRIX FOR SCORE = 55

TTRIX

0.04	0.00	0.09	0.05	0.04	0.06	0.01	0.14	0.00	0.01	0.05	0.15	0.02	0.12	0.06	0.10
0.02	0.01	0.01	0.08	0.03	0.06	0.15	0.02	0.02	0.00	0.08	0.02	0.02	0.08	0.31	0.03
0.07	0.04	0.02	0.03	0.05	0.14	0.05	0.04	0.01	0.08	0.00	0.01	0.04	0.17	0.12	0.06
0.00	0.01	0.16	0.02	0.04	0.01	0.03	0.06	0.07	0.14	0.03	0.04	0.05	0.03	0.05	0.22
0.02	0.00	0.00	0.00	0.01	0.06	0.10	0.05	0.06	0.04	0.00	0.25	0.02	0.05	0.26	0.00
0.19	0.03	0.02	0.02	0.06	0.03	0.12	0.05	0.11	0.03	0.02	0.01	0.13	0.06	0.00	0.08
0.01	0.02	0.02	0.01	0.07	0.00	0.04	0.07	0.13	0.00	0.04	0.04	0.13	0.02	0.00	0.33
0.06	0.11	0.13	0.09	0.15	0.03	0.05	0.09	0.02	0.00	0.09	0.01	0.00	0.03	0.08	0.01
0.00	0.05	0.10	0.01	0.04	0.03	0.08	0.02	0.05	0.05	0.34	0.01	0.01	0.05	0.08	0.02
0.02	0.02	0.01	0.04	0.18	0.10	0.02	0.12	0.00	0.13	0.04	0.01	0.06	0.01	0.05	0.15
0.35	0.05	0.01	0.00	0.02	0.05	0.02	0.04	0.00	0.04	0.05	0.00	0.12	0.00	0.15	0.04
0.03	0.03	0.16	0.00	0.08	0.01	0.01	0.00	0.03	0.03	0.15	0.11	0.04	0.05	0.06	0.17
0.01	0.01	0.02	0.03	0.03	0.08	0.06	0.15	0.10	0.02	0.09	0.12	0.10	0.03	0.01	0.07
0.01	0.02	0.19	0.02	0.03	0.03	0.20	0.05	0.05	0.00	0.05	0.19	0.07	0.01	0.01	0.01
0.22	0.00	0.04	0.00	0.06	0.00	0.02	0.01	0.06	0.23	0.03	0.04	0.00	0.14	0.03	0.05
0.00	0.01	0.02	0.22	0.05	0.03	0.08	0.00	0.00	0.08	0.00	0.01	0.21	0.01	0.03	0.19

ATRIX

0.04	0.04	0.14	0.20	0.24	0.31	0.32	0.47	0.47	0.49	0.55	0.69	0.71	0.83	0.90	1.00
0.02	0.04	0.05	0.14	0.18	0.24	0.40	0.42	0.44	0.44	0.52	0.55	0.57	0.65	0.96	1.00
0.07	0.12	0.15	0.18	0.24	0.37	0.43	0.48	0.49	0.58	0.58	0.60	0.64	0.81	0.93	1.00
0.00	0.02	0.18	0.20	0.25	0.26	0.29	0.36	0.43	0.57	0.60	0.64	0.69	0.72	0.78	1.00
0.02	0.03	0.03	0.03	0.05	0.12	0.22	0.28	0.34	0.39	0.39	0.65	0.68	0.73	0.99	1.00
0.19	0.23	0.25	0.27	0.34	0.37	0.48	0.54	0.65	0.68	0.71	0.73	0.85	0.92	0.92	1.00
0.01	0.04	0.07	0.08	0.16	0.17	0.21	0.29	0.41	0.42	0.47	0.51	0.64	0.67	0.67	1.00
0.06	0.17	0.30	0.39	0.54	0.57	0.63	0.73	0.75	0.76	0.85	0.87	0.87	0.91	0.99	1.00
0.00	0.05	0.16	0.18	0.22	0.25	0.34	0.37	0.42	0.47	0.81	0.82	0.84	0.89	0.97	1.00
0.02	0.04	0.05	0.10	0.28	0.38	0.41	0.52	0.53	0.66	0.70	0.72	0.78	0.80	0.85	1.00
0.35	0.40	0.42	0.42	0.44	0.50	0.53	0.58	0.58	0.62	0.67	0.68	0.80	0.80	0.96	1.00
0.03	0.06	0.23	0.23	0.31	0.32	0.34	0.34	0.38	0.41	0.56	0.67	0.71	0.77	0.83	1.00
0.01	0.02	0.05	0.08	0.12	0.20	0.26	0.41	0.52	0.55	0.64	0.77	0.87	0.91	0.92	1.00
0.01	0.03	0.22	0.25	0.28	0.31	0.51	0.56	0.62	0.62	0.68	0.87	0.95	0.97	0.98	1.00
0.22	0.23	0.27	0.28	0.34	0.35	0.37	0.39	0.45	0.68	0.72	0.76	0.77	0.91	0.95	1.00
0.00	0.02	0.05	0.27	0.32	0.36	0.44	0.45	0.45	0.53	0.54	0.56	0.76	0.78	0.81	1.00

TRANSITION MATRIX FOR SCORE = 60

TTRIX

0.08	0.00	0.03	0.09	0.07	0.06	0.02	0.11	0.01	0.03	0.06	0.15	0.02	0.09	0.05	0.08
0.03	0.01	0.02	0.09	0.03	0.14	0.12	0.03	0.01	0.11	0.09	0.02	0.04	0.06	0.13	0.02
0.11	0.05	0.01	0.02	0.02	0.07	0.04	0.14	0.04	0.03	0.02	0.00	0.02	0.19	0.09	0.10
0.04	0.01	0.14	0.02	0.04	0.01	0.07	0.06	0.09	0.12	0.05	0.04	0.02	0.04	0.04	0.14
0.02	0.00	0.00	0.00	0.03	0.11	0.11	0.13	0.02	0.05	0.02	0.16	0.06	0.05	0.18	0.00
0.10	0.04	0.02	0.04	0.05	0.04	0.10	0.10	0.10	0.03	0.02	0.04	0.11	0.05	0.00	0.09
0.00	0.08	0.02	0.00	0.03	0.00	0.03	0.01	0.07	0.00	0.03	0.02	0.09	0.01	0.05	0.48
0.04	0.06	0.16	0.12	0.15	0.05	0.08	0.04	0.00	0.00	0.07	0.01	0.03	0.05	0.08	0.00
0.00	0.20	0.05	0.15	0.03	0.04	0.03	0.01	0.03	0.03	0.25	0.01	0.00	0.02	0.04	0.02
0.00	0.04	0.02	0.06	0.06	0.07	0.06	0.07	0.01	0.08	0.02	0.01	0.23	0.02	0.06	0.13
0.25	0.11	0.00	0.00	0.02	0.13	0.01	0.02	0.03	0.03	0.05	0.00	0.10	0.00	0.16	0.05
0.01	0.07	0.13	0.00	0.09	0.01	0.01	0.00	0.04	0.02	0.15	0.11	0.04	0.04	0.07	0.16
0.01	0.01	0.04	0.04	0.01	0.02	0.04	0.13	0.11	0.10	0.05	0.13	0.09	0.04	0.01	0.12
0.04	0.01	0.13	0.09	0.01	0.03	0.11	0.03	0.00	0.00	0.11	0.10	0.28	0.00	0.00	0.01
0.14	0.03	0.01	0.00	0.07	0.00	0.01	0.02	0.26	0.16	0.06	0.01	0.00	0.07	0.03	0.06
0.00	0.01	0.01	0.14	0.11	0.07	0.02	0.03	0.02	0.08	0.05	0.01	0.17	0.02	0.02	0.18

ATRIX

0.08	0.08	0.13	0.22	0.29	0.35	0.37	0.48	0.50	0.54	0.60	0.75	0.77	0.86	0.92	1.00
0.03	0.05	0.07	0.16	0.21	0.35	0.46	0.49	0.51	0.62	0.72	0.74	0.79	0.85	0.98	1.00
0.11	0.16	0.17	0.19	0.22	0.29	0.34	0.47	0.52	0.55	0.58	0.59	0.62	0.80	0.90	1.00
0.04	0.06	0.20	0.23	0.27	0.29	0.36	0.43	0.52	0.65	0.71	0.75	0.77	0.82	0.86	1.00
0.02	0.02	0.03	0.03	0.06	0.18	0.29	0.42	0.44	0.50	0.52	0.69	0.75	0.81	0.99	1.00
0.10	0.15	0.18	0.22	0.28	0.33	0.43	0.53	0.63	0.67	0.69	0.74	0.85	0.90	0.90	1.00
0.00	0.09	0.12	0.12	0.16	0.17	0.20	0.22	0.29	0.29	0.33	0.35	0.45	0.47	0.52	1.00
0.04	0.10	0.26	0.38	0.53	0.59	0.67	0.72	0.73	0.73	0.80	0.82	0.86	0.91	1.00	1.00
0.00	0.21	0.27	0.41	0.45	0.50	0.53	0.55	0.59	0.62	0.88	0.89	0.90	0.93	0.97	1.00
0.00	0.05	0.07	0.15	0.21	0.28	0.34	0.41	0.42	0.50	0.53	0.55	0.78	0.80	0.87	1.00
0.25	0.36	0.37	0.37	0.39	0.52	0.53	0.56	0.59	0.63	0.68	0.69	0.79	0.79	0.95	1.00
0.01	0.08	0.21	0.22	0.31	0.33	0.35	0.35	0.39	0.42	0.57	0.68	0.72	0.77	0.84	1.00
0.01	0.02	0.06	0.11	0.12	0.15	0.19	0.32	0.43	0.53	0.59	0.72	0.82	0.87	0.88	1.00
0.04	0.05	0.18	0.28	0.30	0.33	0.44	0.47	0.48	0.48	0.59	0.70	0.97	0.98	0.99	1.00
0.14	0.17	0.19	0.19	0.26	0.27	0.29	0.31	0.57	0.74	0.80	0.82	0.82	0.90	0.93	1.00
0.00	0.02	0.04	0.18	0.29	0.37	0.39	0.43	0.45	0.54	0.59	0.60	0.77	0.80	0.82	1.00

TRANSITION MATRIX FOR SCORE = 65

TTRIX

0.06	0.00	0.00	0.01	0.06	0.06	0.03	0.13	0.00	0.01	0.03	0.18	0.01	0.17	0.08	0.14
0.00	0.01	0.02	0.08	0.02	0.16	0.09	0.02	0.01	0.03	0.09	0.02	0.04	0.02	0.32	0.01
0.26	0.02	0.01	0.01	0.01	0.08	0.02	0.08	0.04	0.02	0.02	0.00	0.02	0.16	0.05	0.14
0.01	0.01	0.16	0.02	0.08	0.01	0.04	0.04	0.06	0.10	0.04	0.05	0.01	0.05	0.04	0.22
0.01	0.00	0.00	0.00	0.00	0.04	0.04	0.05	0.01	0.01	0.02	0.62	0.00	0.02	0.12	0.00
0.19	0.00	0.02	0.01	0.04	0.05	0.03	0.12	0.24	0.00	0.01	0.03	0.09	0.04	0.00	0.08
0.01	0.29	0.03	0.01	0.02	0.00	0.00	0.02	0.04	0.00	0.02	0.02	0.15	0.01	0.00	0.30
0.07	0.05	0.17	0.04	0.18	0.06	0.09	0.04	0.02	0.00	0.06	0.01	0.02	0.01	0.10	0.00
0.00	0.12	0.14	0.03	0.00	0.06	0.04	0.03	0.03	0.02	0.42	0.00	0.00	0.00	0.03	0.02
0.02	0.00	0.02	0.05	0.00	0.09	0.01	0.10	0.02	0.08	0.01	0.00	0.25	0.02	0.11	0.16
0.61	0.10	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.05	0.00	0.10	0.02
0.01	0.06	0.41	0.00	0.07	0.00	0.01	0.00	0.02	0.01	0.02	0.09	0.03	0.03	0.04	0.14
0.01	0.01	0.05	0.05	0.00	0.01	0.05	0.12	0.15	0.07	0.05	0.13	0.08	0.03	0.00	0.14
0.02	0.01	0.13	0.00	0.02	0.03	0.11	0.03	0.01	0.00	0.37	0.09	0.13	0.00	0.01	0.01
0.09	0.02	0.00	0.00	0.05	0.00	0.00	0.00	0.54	0.06	0.03	0.01	0.00	0.04	0.08	0.03
0.00	0.04	0.02	0.08	0.01	0.04	0.06	0.04	0.05	0.13	0.03	0.02	0.13	0.03	0.03	0.21

ATRIX

0.06	0.06	0.06	0.07	0.15	0.21	0.24	0.37	0.37	0.38	0.41	0.60	0.61	0.78	0.86	1.00
0.00	0.02	0.04	0.12	0.15	0.31	0.41	0.43	0.45	0.48	0.57	0.59	0.63	0.66	0.98	1.00
0.26	0.28	0.29	0.31	0.33	0.41	0.44	0.52	0.56	0.59	0.61	0.62	0.65	0.80	0.86	1.00
0.01	0.03	0.19	0.22	0.30	0.31	0.36	0.40	0.46	0.57	0.61	0.66	0.68	0.73	0.78	1.00
0.01	0.01	0.01	0.02	0.03	0.07	0.12	0.18	0.19	0.21	0.23	0.85	0.85	0.88	1.00	1.00
0.19	0.20	0.22	0.24	0.29	0.34	0.37	0.48	0.73	0.73	0.74	0.77	0.86	0.91	0.91	1.00
0.01	0.31	0.34	0.36	0.38	0.39	0.40	0.42	0.47	0.47	0.49	0.52	0.67	0.69	0.70	1.00
0.07	0.13	0.30	0.35	0.53	0.59	0.69	0.74	0.76	0.77	0.83	0.85	0.87	0.89	0.99	1.00
0.00	0.13	0.26	0.30	0.30	0.37	0.41	0.44	0.47	0.50	0.92	0.93	0.93	0.94	0.98	1.00
0.02	0.02	0.05	0.11	0.11	0.21	0.22	0.32	0.34	0.42	0.44	0.45	0.70	0.73	0.84	1.00
0.61	0.71	0.72	0.72	0.74	0.75	0.76	0.77	0.77	0.79	0.81	0.81	0.87	0.87	0.97	1.00
0.01	0.07	0.49	0.49	0.57	0.58	0.59	0.59	0.62	0.63	0.65	0.75	0.78	0.81	0.86	1.00
0.01	0.02	0.07	0.13	0.13	0.15	0.21	0.32	0.48	0.55	0.60	0.73	0.81	0.85	0.86	1.00
0.02	0.03	0.16	0.16	0.19	0.22	0.33	0.37	0.38	0.38	0.75	0.84	0.97	0.98	0.99	1.00
0.09	0.12	0.12	0.12	0.17	0.18	0.18	0.19	0.73	0.79	0.82	0.84	0.84	0.88	0.96	1.00
0.00	0.05	0.07	0.16	0.17	0.22	0.29	0.33	0.39	0.52	0.56	0.58	0.71	0.75	0.79	1.00

TRANSITION MATRIX FOR SCORE = 70

TTRIX

0.08	0.00	0.00	0.07	0.02	0.10	0.01	0.15	0.01	0.00	0.00	0.17	0.00	0.05	0.12	0.17
0.00	0.01	0.02	0.08	0.03	0.21	0.12	0.03	0.01	0.01	0.10	0.01	0.05	0.01	0.24	0.00
0.00	0.00	0.02	0.00	0.00	0.07	0.03	0.21	0.00	0.00	0.02	0.01	0.01	0.27	0.02	0.28
0.05	0.01	0.22	0.01	0.07	0.01	0.04	0.03	0.03	0.08	0.02	0.05	0.01	0.03	0.01	0.27
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.88	0.00	0.00	0.03	0.00
0.25	0.01	0.02	0.00	0.05	0.04	0.03	0.16	0.19	0.02	0.02	0.05	0.06	0.00	0.00	0.04
0.00	0.39	0.01	0.00	0.00	0.00	0.00	0.02	0.11	0.00	0.02	0.01	0.20	0.01	0.00	0.16
0.08	0.05	0.33	0.02	0.11	0.00	0.13	0.02	0.02	0.01	0.04	0.02	0.00	0.01	0.12	0.00
0.01	0.19	0.15	0.02	0.01	0.01	0.01	0.00	0.03	0.02	0.41	0.01	0.01	0.03	0.04	0.01
0.01	0.00	0.01	0.01	0.01	0.05	0.00	0.14	0.00	0.03	0.00	0.00	0.54	0.02	0.05	0.07
0.15	0.60	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.00	0.10	0.02
0.00	0.01	0.46	0.00	0.07	0.01	0.02	0.00	0.02	0.00	0.01	0.04	0.03	0.05	0.10	0.13
0.00	0.01	0.15	0.01	0.01	0.00	0.03	0.09	0.13	0.11	0.01	0.16	0.08	0.01	0.00	0.16
0.01	0.03	0.18	0.01	0.06	0.01	0.13	0.04	0.00	0.00	0.12	0.11	0.20	0.02	0.03	0.02
0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.67	0.02	0.07	0.02	0.00	0.03	0.03	0.02
0.01	0.08	0.02	0.06	0.00	0.03	0.01	0.00	0.00	0.29	0.02	0.07	0.04	0.05	0.06	0.20

ATRIX

0.08	0.08	0.08	0.16	0.18	0.29	0.31	0.46	0.47	0.48	0.48	0.65	0.65	0.71	0.83	1.00
0.00	0.02	0.04	0.14	0.17	0.38	0.50	0.53	0.55	0.56	0.66	0.68	0.74	0.75	0.99	1.00
0.00	0.01	0.03	0.04	0.04	0.12	0.15	0.36	0.37	0.37	0.40	0.41	0.43	0.70	0.72	1.00
0.05	0.07	0.29	0.31	0.38	0.40	0.44	0.48	0.51	0.60	0.62	0.67	0.69	0.72	0.73	1.00
0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.05	0.06	0.06	0.06	0.95	0.95	0.96	1.00	1.00
0.25	0.26	0.29	0.29	0.35	0.40	0.44	0.59	0.78	0.80	0.82	0.88	0.95	0.95	0.95	1.00
0.00	0.40	0.41	0.42	0.43	0.43	0.44	0.46	0.57	0.58	0.61	0.62	0.82	0.84	0.84	1.00
0.08	0.14	0.47	0.49	0.60	0.60	0.73	0.75	0.77	0.79	0.83	0.86	0.87	0.88	1.00	1.00
0.01	0.21	0.35	0.38	0.39	0.40	0.42	0.42	0.45	0.47	0.89	0.90	0.91	0.95	0.99	1.00
0.01	0.01	0.02	0.04	0.05	0.11	0.11	0.25	0.25	0.29	0.29	0.30	0.84	0.86	0.92	1.00
0.15	0.75	0.76	0.76	0.77	0.78	0.79	0.79	0.80	0.82	0.84	0.85	0.88	0.88	0.98	1.00
0.00	0.01	0.47	0.48	0.56	0.58	0.60	0.60	0.62	0.63	0.65	0.69	0.72	0.77	0.87	1.00
0.00	0.02	0.17	0.18	0.19	0.20	0.23	0.33	0.45	0.56	0.58	0.74	0.82	0.83	0.84	1.00
0.01	0.04	0.22	0.24	0.30	0.32	0.45	0.49	0.49	0.50	0.62	0.73	0.92	0.94	0.98	1.00
0.07	0.07	0.08	0.08	0.09	0.10	0.11	0.11	0.78	0.81	0.88	0.91	0.91	0.94	0.98	1.00
0.01	0.10	0.13	0.20	0.20	0.24	0.25	0.26	0.26	0.54	0.57	0.64	0.68	0.74	0.80	1.00

TRANSITION MATRIX FOR SCORE = 75

TTRIX

0.04	0.00	0.05	0.00	0.03	0.05	0.02	0.11	0.01	0.01	0.02	0.09	0.03	0.28	0.07	0.14
0.00	0.02	0.03	0.07	0.00	0.20	0.14	0.04	0.02	0.01	0.11	0.02	0.07	0.00	0.21	0.01
0.38	0.02	0.00	0.00	0.03	0.04	0.01	0.11	0.00	0.00	0.01	0.00	0.01	0.10	0.01	0.23
0.00	0.01	0.23	0.03	0.12	0.03	0.02	0.07	0.02	0.08	0.02	0.02	0.00	0.00	0.05	0.25
0.03	0.00	0.00	0.00	0.01	0.05	0.07	0.11	0.03	0.04	0.05	0.26	0.00	0.04	0.22	0.00
0.11	0.00	0.02	0.00	0.04	0.04	0.02	0.43	0.12	0.03	0.01	0.04	0.03	0.00	0.00	0.05
0.00	0.25	0.03	0.00	0.00	0.00	0.00	0.07	0.08	0.00	0.00	0.05	0.12	0.01	0.00	0.30
0.09	0.05	0.25	0.04	0.11	0.00	0.13	0.02	0.03	0.01	0.07	0.02	0.00	0.03	0.07	0.02
0.01	0.27	0.25	0.03	0.00	0.01	0.09	0.01	0.02	0.02	0.18	0.01	0.01	0.00	0.03	0.01
0.02	0.00	0.00	0.00	0.05	0.08	0.01	0.14	0.00	0.04	0.01	0.01	0.37	0.03	0.07	0.10
0.54	0.24	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.03	0.01	0.01	0.03	0.00	0.05	0.00
0.00	0.00	0.78	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.02	0.01	0.03	0.03
0.02	0.01	0.13	0.01	0.00	0.00	0.03	0.08	0.17	0.12	0.03	0.11	0.09	0.00	0.01	0.14
0.02	0.00	0.03	0.00	0.01	0.00	0.02	0.01	0.02	0.00	0.69	0.02	0.13	0.00	0.00	0.00
0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.70	0.07	0.02	0.02	0.00	0.01	0.00	0.01
0.03	0.07	0.03	0.09	0.00	0.04	0.01	0.02	0.01	0.20	0.01	0.02	0.04	0.15	0.06	0.17

ATRIX

0.04	0.04	0.09	0.10	0.13	0.19	0.22	0.32	0.34	0.35	0.38	0.48	0.51	0.79	0.86	1.00
0.00	0.03	0.06	0.14	0.15	0.34	0.48	0.53	0.55	0.56	0.68	0.70	0.77	0.78	0.99	1.00
0.38	0.40	0.40	0.40	0.43	0.48	0.49	0.60	0.60	0.61	0.63	0.64	0.65	0.75	0.77	1.00
0.00	0.02	0.25	0.28	0.40	0.43	0.46	0.53	0.56	0.64	0.66	0.68	0.69	0.70	0.75	1.00
0.03	0.04	0.04	0.05	0.06	0.12	0.20	0.31	0.35	0.40	0.46	0.72	0.72	0.77	0.99	1.00
0.11	0.12	0.14	0.14	0.19	0.24	0.27	0.70	0.82	0.85	0.87	0.91	0.95	0.95	0.95	1.00
0.00	0.26	0.30	0.31	0.31	0.32	0.33	0.40	0.49	0.50	0.50	0.56	0.68	0.69	0.70	1.00
0.09	0.15	0.40	0.44	0.55	0.56	0.69	0.71	0.75	0.76	0.84	0.86	0.87	0.90	0.97	1.00
0.01	0.28	0.53	0.56	0.57	0.58	0.67	0.69	0.71	0.73	0.92	0.93	0.94	0.94	0.98	1.00
0.02	0.02	0.03	0.04	0.09	0.18	0.20	0.34	0.34	0.39	0.41	0.42	0.78	0.82	0.90	1.00
0.54	0.77	0.78	0.78	0.79	0.81	0.82	0.83	0.84	0.87	0.89	0.90	0.93	0.94	0.99	1.00
0.00	0.01	0.79	0.80	0.83	0.84	0.85	0.85	0.87	0.87	0.88	0.89	0.92	0.93	0.96	1.00
0.02	0.03	0.16	0.18	0.18	0.18	0.22	0.30	0.47	0.59	0.63	0.74	0.84	0.84	0.86	1.00
0.02	0.03	0.06	0.06	0.07	0.07	0.10	0.11	0.14	0.14	0.83	0.85	0.98	0.99	0.99	1.00
0.07	0.07	0.08	0.08	0.10	0.11	0.12	0.12	0.82	0.90	0.92	0.95	0.96	0.98	0.98	1.00
0.03	0.11	0.14	0.23	0.24	0.28	0.30	0.32	0.34	0.53	0.55	0.57	0.62	0.76	0.83	1.00

TRANSITION MATRIX FOR SCORE = 80

TTRIX

0.07	0.00	0.02	0.01	0.01	0.07	0.03	0.06	0.00	0.01	0.04	0.11	0.00	0.34	0.05	0.13
0.01	0.02	0.03	0.10	0.02	0.16	0.13	0.04	0.03	0.00	0.08	0.03	0.08	0.02	0.20	0.01
0.14	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.71
0.00	0.03	0.20	0.03	0.15	0.03	0.02	0.02	0.03	0.14	0.07	0.00	0.00	0.00	0.02	0.20
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.90	0.00	0.01	0.02	0.00
0.11	0.00	0.02	0.01	0.06	0.05	0.00	0.37	0.13	0.00	0.00	0.11	0.03	0.00	0.00	0.04
0.01	0.12	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.00	0.03	0.00	0.28	0.01	0.00	0.42
0.11	0.01	0.21	0.02	0.07	0.04	0.08	0.02	0.08	0.04	0.02	0.04	0.05	0.02	0.14	0.00
0.00	0.33	0.20	0.01	0.00	0.01	0.02	0.02	0.08	0.01	0.13	0.01	0.01	0.03	0.06	0.02
0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.11	0.00	0.01	0.00	0.02	0.70	0.01	0.03	0.03
0.42	0.28	0.06	0.00	0.01	0.00	0.01	0.00	0.01	0.05	0.03	0.01	0.01	0.00	0.06	0.01
0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.01
0.00	0.01	0.07	0.00	0.01	0.00	0.03	0.01	0.00	0.00	0.51	0.04	0.25	0.00	0.01	0.01
0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.74	0.02	0.05	0.03	0.00	0.01	0.00	0.03
0.01	0.20	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.64	0.00	0.01

ATRIX

0.07	0.07	0.09	0.11	0.12	0.20	0.23	0.30	0.30	0.32	0.36	0.48	0.48	0.81	0.87	1.00
0.01	0.04	0.07	0.17	0.20	0.36	0.49	0.53	0.57	0.57	0.65	0.68	0.76	0.79	0.99	1.00
0.14	0.14	0.15	0.15	0.15	0.17	0.17	0.24	0.24	0.24	0.24	0.24	0.25	0.28	0.29	1.00
0.00	0.03	0.24	0.27	0.42	0.45	0.48	0.50	0.54	0.68	0.76	0.76	0.77	0.77	0.80	1.00
0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.04	0.04	0.05	0.06	0.97	0.97	0.98	1.00	1.00
0.11	0.12	0.14	0.15	0.22	0.28	0.29	0.66	0.79	0.79	0.80	0.91	0.94	0.95	0.95	1.00
0.01	0.13	0.14	0.14	0.15	0.15	0.16	0.18	0.24	0.24	0.28	0.29	0.56	0.58	0.58	1.00
0.11	0.12	0.33	0.35	0.42	0.47	0.56	0.58	0.66	0.70	0.73	0.78	0.84	0.86	0.99	1.00
0.00	0.33	0.53	0.55	0.55	0.57	0.59	0.62	0.70	0.71	0.84	0.86	0.88	0.91	0.97	1.00
0.00	0.00	0.01	0.02	0.03	0.06	0.06	0.18	0.18	0.20	0.20	0.21	0.91	0.93	0.96	1.00
0.42	0.69	0.76	0.76	0.77	0.78	0.80	0.80	0.81	0.86	0.89	0.90	0.92	0.92	0.98	1.00
0.00	0.00	0.94	0.94	0.95	0.96	0.96	0.96	0.97	0.97	0.97	0.98	0.98	0.98	0.99	1.00
0.00	0.00	0.90	0.90	0.90	0.90	0.90	0.91	0.93	0.95	0.96	0.97	0.98	0.98	0.99	1.00
0.00	0.01	0.08	0.09	0.10	0.11	0.14	0.16	0.16	0.16	0.67	0.71	0.96	0.97	0.98	1.00
0.02	0.02	0.05	0.05	0.06	0.06	0.07	0.08	0.82	0.85	0.90	0.94	0.95	0.96	0.97	1.00
0.01	0.21	0.23	0.26	0.26	0.26	0.27	0.27	0.28	0.31	0.31	0.34	0.34	0.98	0.99	1.00

RANSITION MATRIX FOR SCORE = 85

TTRIX

0.00	0.01	0.01	0.00	0.03	0.01	0.04	0.08	0.01	0.02	0.01	0.10	0.01	0.51	0.05	0.07
0.01	0.04	0.04	0.05	0.01	0.10	0.07	0.03	0.07	0.00	0.08	0.06	0.09	0.01	0.25	0.03
0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
0.00	0.01	0.24	0.00	0.23	0.04	0.03	0.09	0.04	0.05	0.03	0.00	0.03	0.00	0.02	0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.03	0.84	0.00	0.01	0.03	0.00
0.08	0.00	0.02	0.00	0.03	0.04	0.01	0.54	0.09	0.00	0.00	0.10	0.02	0.00	0.00	0.01
0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.02	0.19	0.00	0.00	0.52
0.14	0.00	0.20	0.01	0.04	0.00	0.12	0.02	0.08	0.09	0.06	0.06	0.02	0.02	0.04	0.05
0.00	0.54	0.28	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.04	0.01	0.01	0.00	0.03	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.00	0.00	0.00	0.00	0.81	0.01	0.03	0.01
0.43	0.23	0.00	0.00	0.06	0.01	0.01	0.00	0.00	0.01	0.04	0.00	0.08	0.01	0.05	0.02
0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.84	0.00	0.00	0.00
0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.73	0.03	0.00	0.08	0.01	0.00	0.00	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

ATRIX

0.00	0.01	0.02	0.03	0.06	0.07	0.12	0.20	0.21	0.24	0.25	0.35	0.37	0.88	0.93	1.00
0.01	0.05	0.10	0.16	0.18	0.28	0.35	0.39	0.46	0.46	0.55	0.61	0.70	0.71	0.96	1.00
0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00
0.00	0.01	0.26	0.26	0.50	0.55	0.58	0.67	0.71	0.77	0.80	0.80	0.84	0.85	0.87	1.00
0.00	0.01	0.01	0.01	0.01	0.02	0.03	0.06	0.07	0.08	0.11	0.95	0.95	0.97	1.00	1.00
0.08	0.08	0.11	0.11	0.14	0.19	0.21	0.75	0.85	0.85	0.86	0.96	0.98	0.98	0.98	1.00
0.00	0.12	0.13	0.14	0.15	0.15	0.15	0.17	0.24	0.24	0.25	0.27	0.47	0.48	0.48	1.00
0.14	0.14	0.34	0.36	0.40	0.40	0.52	0.55	0.63	0.73	0.79	0.85	0.87	0.90	0.94	1.00
0.00	0.54	0.82	0.82	0.85	0.86	0.86	0.86	0.88	0.89	0.93	0.95	0.96	0.96	0.99	1.00
0.00	0.00	0.00	0.01	0.01	0.04	0.04	0.12	0.12	0.13	0.13	0.14	0.94	0.96	0.99	1.00
0.43	0.65	0.66	0.66	0.73	0.74	0.75	0.75	0.76	0.77	0.82	0.82	0.91	0.92	0.98	1.00
0.00	0.00	0.96	0.96	0.97	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.98	1.00	1.00
0.00	0.00	0.91	0.91	0.91	0.92	0.92	0.93	0.94	0.97	0.97	0.98	0.99	0.99	0.99	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.15	0.15	0.99	0.99	1.00	1.00
0.01	0.02	0.02	0.02	0.03	0.04	0.05	0.07	0.80	0.83	0.84	0.92	0.94	0.94	0.95	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00

TRANSITION MATRIX FOR SCORE = 90

TTRIX

0.00	0.01	0.00	0.03	0.04	0.26	0.03	0.22	0.00	0.00	0.02	0.01	0.00	0.08	0.05	0.20
0.00	0.08	0.04	0.04	0.01	0.14	0.07	0.09	0.05	0.00	0.07	0.01	0.12	0.00	0.22	0.01
1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.17	0.01	0.36	0.06	0.00	0.00	0.01	0.04	0.03	0.00	0.02	0.00	0.04	0.20
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.92	0.00	0.00	0.01	0.00
0.02	0.00	0.01	0.00	0.01	0.02	0.00	0.50	0.03	0.00	0.00	0.37	0.00	0.00	0.00	0.00
0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.51	0.00	0.00	0.31
0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.46	0.34	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.04	0.00	0.04	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
0.22	0.27	0.00	0.07	0.07	0.01	0.02	0.00	0.01	0.03	0.00	0.02	0.06	0.01	0.09	0.05
0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.01	0.02	0.64	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

ATRIX

0.00	0.01	0.01	0.04	0.08	0.35	0.39	0.61	0.61	0.61	0.64	0.66	0.66	0.74	0.80	1.00
0.00	0.09	0.14	0.18	0.20	0.33	0.41	0.51	0.56	0.56	0.63	0.64	0.76	0.77	0.99	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.02	0.20	0.22	0.58	0.64	0.64	0.65	0.66	0.71	0.74	0.74	0.76	0.76	0.80	1.00
0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.03	0.06	0.98	0.98	0.98	1.00	1.00
0.02	0.02	0.04	0.04	0.05	0.08	0.08	0.59	0.62	0.62	0.62	0.99	0.99	0.99	1.00	1.00
0.00	0.06	0.06	0.07	0.08	0.09	0.09	0.10	0.17	0.17	0.17	0.18	0.68	0.69	0.69	1.00
0.01	0.02	0.04	0.05	0.05	0.05	0.07	0.07	0.07	0.98	0.98	0.99	0.99	0.99	1.00	1.00
0.00	0.47	0.81	0.81	0.83	0.83	0.83	0.83	0.85	0.85	0.87	0.90	0.94	0.95	0.99	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
0.22	0.49	0.50	0.58	0.65	0.67	0.69	0.69	0.71	0.75	0.75	0.78	0.84	0.85	0.95	1.00
0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.31	0.33	0.35	0.99	0.99	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00

APPENDIX 15

TRANSITION AND ACCUMULATIVE MATRICES FOR VARIOUS TARGET SCORES (-2 DATA)

TRANSITION MATRIX FOR SCORE = 10

TTRIX

0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00
0.21	0.01	0.01	0.06	0.07	0.03	0.00	0.03	0.08	0.05	0.02	0.01	0.01	0.27	0.00	0.07
0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.73	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.01	0.00	0.01	0.01	0.01	0.11	0.01	0.00
0.02	0.09	0.07	0.43	0.03	0.01	0.01	0.00	0.01	0.02	0.00	0.01	0.01	0.01	0.00	0.21
0.00	0.15	0.01	0.10	0.02	0.02	0.04	0.00	0.03	0.41	0.07	0.02	0.01	0.00	0.00	0.06
0.15	0.00	0.08	0.06	0.09	0.02	0.17	0.04	0.04	0.08	0.08	0.11	0.00	0.01	0.01	0.00
0.01	0.01	0.00	0.01	0.00	0.69	0.00	0.01	0.01	0.00	0.01	0.01	0.06	0.07	0.02	0.00
0.01	0.51	0.00	0.11	0.04	0.07	0.02	0.05	0.01	0.01	0.00	0.00	0.00	0.08	0.01	0.02
0.02	0.01	0.11	0.02	0.05	0.01	0.25	0.00	0.44	0.00	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.02	0.00	0.02	0.17	0.01	0.46	0.18	0.03	0.03	0.01	0.00	0.00	0.00	0.02
0.16	0.07	0.00	0.00	0.04	0.02	0.00	0.00	0.04	0.03	0.53	0.01	0.01	0.01	0.01	0.01
0.04	0.02	0.00	0.11	0.02	0.37	0.05	0.01	0.01	0.00	0.04	0.01	0.02	0.15	0.08	0.00
0.14	0.01	0.00	0.37	0.04	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.37	0.00	0.00
0.01	0.21	0.25	0.00	0.02	0.00	0.00	0.21	0.00	0.02	0.06	0.02	0.00	0.03	0.08	0.02
0.01	0.02	0.04	0.00	0.20	0.04	0.15	0.06	0.09	0.00	0.22	0.01	0.07	0.00	0.04	0.01

ATRIX

0.00	0.00	0.75	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.78	0.78	0.78	1.00	1.00	1.00
0.21	0.23	0.25	0.31	0.39	0.42	0.43	0.47	0.55	0.60	0.62	0.64	0.66	0.92	0.93	1.00
0.97	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
0.73	0.74	0.74	0.75	0.75	0.76	0.79	0.81	0.82	0.82	0.83	0.85	0.87	0.98	0.99	1.00
0.02	0.11	0.19	0.62	0.66	0.67	0.69	0.69	0.71	0.73	0.73	0.75	0.76	0.78	0.79	1.00
0.00	0.16	0.17	0.27	0.29	0.31	0.36	0.36	0.40	0.81	0.89	0.91	0.93	0.93	0.93	1.00
0.15	0.15	0.23	0.30	0.39	0.42	0.59	0.63	0.68	0.76	0.85	0.96	0.96	0.98	1.00	1.00
0.01	0.02	0.03	0.05	0.06	0.75	0.76	0.78	0.80	0.80	0.82	0.83	0.89	0.97	1.00	1.00
0.01	0.53	0.53	0.64	0.68	0.76	0.78	0.84	0.85	0.87	0.87	0.88	0.88	0.96	0.98	1.00
0.02	0.04	0.15	0.18	0.24	0.25	0.50	0.51	0.95	0.95	0.97	0.98	0.99	0.99	1.00	1.00
0.00	0.01	0.03	0.04	0.06	0.24	0.26	0.72	0.90	0.93	0.96	0.97	0.97	0.98	0.98	1.00
0.16	0.23	0.23	0.24	0.28	0.30	0.30	0.31	0.36	0.39	0.92	0.94	0.95	0.97	0.98	1.00
0.04	0.07	0.07	0.19	0.21	0.58	0.63	0.64	0.66	0.67	0.71	0.73	0.76	0.91	1.00	1.00
0.14	0.15	0.16	0.53	0.57	0.57	0.57	0.58	0.62	0.62	0.62	0.63	0.63	1.00	1.00	1.00
0.01	0.22	0.48	0.48	0.51	0.51	0.52	0.73	0.73	0.76	0.83	0.85	0.85	0.88	0.97	1.00
0.01	0.03	0.07	0.08	0.28	0.33	0.47	0.53	0.62	0.63	0.85	0.86	0.93	0.94	0.98	1.00

TRANSITION MATRIX FOR SCORE = 15

TTRIX

0.03	0.00	0.38	0.17	0.04	0.01	0.04	0.01	0.03	0.14	0.05	0.00	0.06	0.00	0.00	0.00
0.20	0.01	0.05	0.03	0.15	0.02	0.00	0.01	0.05	0.04	0.01	0.02	0.00	0.24	0.01	0.12
0.44	0.07	0.03	0.05	0.10	0.00	0.01	0.00	0.14	0.03	0.03	0.00	0.02	0.00	0.01	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.02	0.88	0.00	0.00
0.00	0.05	0.01	0.49	0.04	0.00	0.01	0.01	0.00	0.03	0.02	0.00	0.00	0.01	0.14	0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.00	0.05	0.04	0.04	0.01	0.23	0.05	0.00	0.11	0.09	0.13	0.03	0.02	0.02	0.00
0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.89	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
0.00	0.00	0.02	0.00	0.00	0.00	0.14	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.88	0.00	0.00	0.00	0.00	0.00
0.04	0.08	0.00	0.09	0.00	0.45	0.03	0.06	0.01	0.00	0.01	0.01	0.01	0.08	0.05	0.01
0.46	0.03	0.01	0.22	0.08	0.01	0.02	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.22	0.15	0.00	0.04	0.00	0.01	0.37	0.00	0.02	0.01	0.00	0.00	0.03	0.07	0.01
0.00	0.00	0.02	0.02	0.20	0.04	0.17	0.07	0.06	0.01	0.30	0.00	0.01	0.00	0.03	0.00

ATRIX

0.03	0.03	0.41	0.58	0.62	0.63	0.67	0.69	0.72	0.86	0.92	0.93	0.99	0.99	0.99	1.00
0.20	0.21	0.26	0.29	0.44	0.47	0.47	0.48	0.54	0.59	0.61	0.63	0.63	0.87	0.88	1.00
0.44	0.51	0.54	0.60	0.70	0.71	0.73	0.73	0.87	0.91	0.94	0.95	0.98	0.98	1.00	1.00
0.00	0.00	0.01	0.01	0.01	0.01	0.03	0.04	0.06	0.06	0.07	0.08	0.11	0.99	1.00	1.00
0.00	0.06	0.08	0.57	0.61	0.62	0.63	0.64	0.64	0.67	0.69	0.70	0.70	0.71	0.85	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.13	0.14	0.19	0.24	0.28	0.29	0.53	0.58	0.59	0.70	0.80	0.92	0.96	0.98	1.00	1.00
0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.89	0.89	0.92	0.92	0.94	0.94	0.96	0.96	0.96	0.96	0.96	0.97	0.99	0.99	1.00
0.00	0.00	0.03	0.03	0.04	0.04	0.19	0.19	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.92	0.98	0.99	0.99	0.99	0.99	1.00	1.00	1.00
0.05	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.10	0.98	0.98	0.99	0.99	0.99	1.00
0.04	0.13	0.14	0.23	0.23	0.68	0.71	0.77	0.79	0.80	0.81	0.83	0.84	0.93	0.99	1.00
0.46	0.50	0.51	0.73	0.82	0.83	0.86	0.88	0.98	0.98	0.98	0.99	0.99	0.99	1.00	1.00
0.03	0.25	0.40	0.40	0.44	0.45	0.46	0.82	0.82	0.85	0.86	0.87	0.87	0.90	0.98	1.00
0.00	0.01	0.03	0.05	0.26	0.31	0.48	0.55	0.62	0.64	0.94	0.95	0.96	0.96	0.99	1.00

TRANSITION MATRIX FOR SCORE = 20

TTRIX

0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.86	0.00	0.00
0.35	0.03	0.01	0.05	0.06	0.02	0.01	0.00	0.01	0.03	0.01	0.01	0.00	0.26	0.00	0.08
0.58	0.04	0.01	0.03	0.08	0.01	0.02	0.00	0.06	0.02	0.04	0.00	0.01	0.00	0.03	0.00
0.20	0.01	0.00	0.01	0.01	0.00	0.05	0.03	0.03	0.01	0.00	0.02	0.06	0.48	0.04	0.00
0.01	0.08	0.02	0.43	0.04	0.00	0.02	0.00	0.01	0.05	0.00	0.00	0.01	0.06	0.05	0.15
0.00	0.16	0.00	0.19	0.00	0.00	0.02	0.00	0.00	0.51	0.03	0.00	0.02	0.00	0.00	0.01
0.10	0.03	0.06	0.05	0.04	0.00	0.29	0.08	0.02	0.03	0.07	0.14	0.00	0.02	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
0.00	0.93	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.03	0.01	0.04	0.01	0.37	0.00	0.42	0.01	0.01	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.01	0.00	0.00	0.04	0.01	0.59	0.26	0.00	0.01	0.00	0.01	0.00	0.00	0.00
0.25	0.07	0.00	0.00	0.00	0.01	0.01	0.00	0.02	0.02	0.46	0.01	0.01	0.04	0.01	0.03
0.02	0.02	0.00	0.11	0.00	0.49	0.02	0.01	0.02	0.00	0.02	0.04	0.03	0.14	0.02	0.02
0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00
0.01	0.19	0.16	0.00	0.04	0.00	0.00	0.34	0.00	0.04	0.02	0.00	0.00	0.03	0.08	0.02
0.00	0.00	0.01	0.03	0.23	0.05	0.18	0.05	0.05	0.01	0.24	0.01	0.05	0.00	0.02	0.00

ATRIX

0.00	0.00	0.05	0.08	0.08	0.09	0.09	0.09	0.10	0.12	0.13	0.13	0.13	0.99	1.00	1.00
0.35	0.39	0.40	0.45	0.52	0.54	0.55	0.56	0.58	0.61	0.62	0.64	0.65	0.91	0.92	1.00
0.58	0.63	0.64	0.68	0.76	0.78	0.80	0.80	0.87	0.90	0.94	0.94	0.96	0.96	0.99	1.00
0.20	0.21	0.22	0.23	0.25	0.25	0.31	0.34	0.37	0.38	0.39	0.41	0.47	0.95	0.99	1.00
0.01	0.10	0.12	0.55	0.60	0.61	0.63	0.64	0.65	0.70	0.71	0.71	0.73	0.79	0.85	1.00
0.00	0.17	0.17	0.36	0.36	0.36	0.39	0.39	0.39	0.90	0.94	0.95	0.98	0.98	0.99	1.00
0.10	0.13	0.20	0.25	0.30	0.31	0.59	0.68	0.71	0.74	0.81	0.96	0.96	0.99	1.00	1.00
0.00	0.00	0.00	0.00	0.01	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.98	1.00	1.00	1.00
0.00	0.93	0.93	0.95	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00
0.01	0.03	0.06	0.08	0.13	0.14	0.51	0.52	0.94	0.96	0.97	0.98	0.98	0.98	0.99	1.00
0.00	0.01	0.02	0.02	0.03	0.07	0.08	0.68	0.94	0.95	0.97	0.97	0.99	0.99	0.99	1.00
0.25	0.32	0.32	0.33	0.34	0.35	0.36	0.37	0.39	0.42	0.88	0.89	0.91	0.95	0.97	1.00
0.02	0.05	0.05	0.16	0.16	0.65	0.68	0.69	0.71	0.72	0.75	0.79	0.82	0.95	0.98	1.00
0.00	0.00	0.00	0.71	0.71	0.71	0.72	0.72	0.72	0.72	0.72	0.72	0.72	1.00	1.00	1.00
0.01	0.20	0.37	0.37	0.41	0.41	0.42	0.76	0.77	0.82	0.84	0.85	0.85	0.89	0.98	1.00
0.00	0.00	0.02	0.06	0.29	0.35	0.52	0.58	0.64	0.65	0.89	0.91	0.96	0.97	0.99	1.00

TRANSITION MATRIX FOR SCORE = 25

TTRIX

0.05	0.00	0.26	0.13	0.04	0.02	0.01	0.01	0.03	0.04	0.06	0.02	0.02	0.21	0.04	0.01
0.29	0.01	0.00	0.02	0.07	0.00	0.02	0.02	0.02	0.06	0.04	0.02	0.00	0.24	0.05	0.06
0.27	0.11	0.03	0.06	0.13	0.00	0.03	0.02	0.09	0.06	0.05	0.00	0.02	0.03	0.03	0.01
0.37	0.01	0.00	0.01	0.00	0.01	0.06	0.02	0.04	0.01	0.02	0.02	0.13	0.16	0.07	0.01
0.08	0.05	0.01	0.13	0.16	0.01	0.06	0.02	0.00	0.11	0.01	0.02	0.00	0.12	0.08	0.08
0.00	0.16	0.01	0.56	0.02	0.00	0.06	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.00	0.01
0.06	0.02	0.04	0.03	0.06	0.01	0.38	0.04	0.02	0.01	0.07	0.12	0.04	0.03	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
0.00	0.46	0.01	0.16	0.07	0.08	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.03	0.00	0.01
0.01	0.02	0.04	0.03	0.06	0.02	0.46	0.01	0.23	0.01	0.01	0.00	0.00	0.01	0.01	0.01
0.00	0.00	0.01	0.00	0.01	0.10	0.01	0.41	0.31	0.01	0.04	0.00	0.00	0.00	0.00	0.04
0.17	0.07	0.02	0.00	0.05	0.01	0.01	0.00	0.02	0.02	0.48	0.01	0.02	0.03	0.01	0.03
0.01	0.01	0.04	0.05	0.00	0.56	0.03	0.00	0.04	0.00	0.02	0.01	0.00	0.12	0.01	0.01
0.01	0.00	0.00	0.58	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.33	0.00	0.00
0.01	0.27	0.35	0.00	0.05	0.00	0.00	0.08	0.00	0.02	0.02	0.00	0.00	0.02	0.11	0.02
0.00	0.00	0.01	0.03	0.09	0.05	0.24	0.05	0.04	0.05	0.25	0.01	0.07	0.01	0.01	0.02

ATRIX

0.05	0.05	0.31	0.45	0.50	0.52	0.53	0.55	0.58	0.63	0.69	0.72	0.74	0.95	0.99	1.00
0.29	0.31	0.31	0.34	0.42	0.42	0.45	0.47	0.49	0.56	0.60	0.62	0.63	0.88	0.93	1.00
0.27	0.38	0.41	0.47	0.60	0.61	0.64	0.67	0.76	0.82	0.88	0.89	0.91	0.95	0.99	1.00
0.37	0.38	0.39	0.40	0.40	0.42	0.49	0.51	0.55	0.56	0.59	0.62	0.75	0.91	0.99	1.00
0.08	0.13	0.15	0.27	0.43	0.45	0.51	0.54	0.55	0.66	0.68	0.70	0.70	0.82	0.91	1.00
0.00	0.16	0.18	0.74	0.76	0.76	0.82	0.82	0.83	0.92	0.97	0.97	0.98	0.98	0.98	1.00
0.06	0.09	0.14	0.18	0.25	0.26	0.64	0.68	0.70	0.72	0.79	0.91	0.95	0.98	0.99	1.00
0.00	0.00	0.01	0.01	0.01	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.99	1.00	1.00	1.00
0.00	0.47	0.48	0.64	0.71	0.80	0.85	0.89	0.91	0.92	0.93	0.94	0.94	0.97	0.98	1.00
0.01	0.04	0.08	0.12	0.18	0.20	0.66	0.68	0.90	0.92	0.94	0.95	0.95	0.97	0.99	1.00
0.00	0.01	0.03	0.03	0.04	0.15	0.16	0.57	0.88	0.89	0.93	0.94	0.95	0.95	0.96	1.00
0.17	0.25	0.27	0.28	0.33	0.35	0.36	0.36	0.39	0.41	0.88	0.90	0.92	0.95	0.97	1.00
0.01	0.03	0.07	0.13	0.14	0.70	0.73	0.74	0.79	0.79	0.82	0.84	0.85	0.97	0.98	1.00
0.01	0.01	0.02	0.61	0.62	0.63	0.64	0.64	0.65	0.65	0.65	0.66	0.66	1.00	1.00	1.00
0.01	0.28	0.63	0.63	0.69	0.69	0.69	0.78	0.78	0.81	0.83	0.84	0.84	0.87	0.97	1.00
0.00	0.00	0.02	0.06	0.16	0.22	0.45	0.51	0.56	0.61	0.86	0.87	0.95	0.96	0.98	1.00

TRANSITION MATRIX FOR SCORE = 30

TTRIX

0.06	0.00	0.16	0.12	0.06	0.05	0.01	0.04	0.06	0.07	0.09	0.02	0.03	0.16	0.02	0.01
0.27	0.01	0.02	0.01	0.06	0.08	0.02	0.02	0.01	0.06	0.07	0.03	0.03	0.15	0.02	0.06
0.33	0.06	0.02	0.04	0.11	0.05	0.05	0.02	0.05	0.05	0.08	0.00	0.02	0.01	0.05	0.01
0.12	0.01	0.05	0.02	0.00	0.01	0.13	0.03	0.12	0.04	0.05	0.03	0.11	0.05	0.15	0.03
0.05	0.03	0.01	0.04	0.15	0.04	0.12	0.04	0.01	0.22	0.04	0.05	0.00	0.08	0.03	0.05
0.07	0.08	0.00	0.36	0.02	0.01	0.16	0.01	0.01	0.09	0.04	0.00	0.02	0.00	0.00	0.07
0.05	0.00	0.05	0.02	0.10	0.00	0.29	0.17	0.00	0.01	0.10	0.10	0.00	0.02	0.02	0.02
0.00	0.03	0.02	0.08	0.05	0.23	0.02	0.06	0.02	0.00	0.04	0.01	0.04	0.23	0.05	0.03
0.00	0.06	0.04	0.16	0.14	0.31	0.09	0.03	0.01	0.03	0.01	0.00	0.00	0.03	0.00	0.02
0.01	0.02	0.05	0.04	0.07	0.04	0.36	0.00	0.23	0.04	0.01	0.01	0.00	0.01	0.01	0.03
0.01	0.02	0.02	0.00	0.03	0.16	0.02	0.33	0.22	0.02	0.06	0.00	0.02	0.00	0.01	0.03
0.29	0.13	0.04	0.00	0.04	0.01	0.01	0.00	0.04	0.02	0.22	0.01	0.04	0.03	0.01	0.05
0.01	0.00	0.01	0.07	0.01	0.45	0.05	0.02	0.01	0.04	0.03	0.02	0.02	0.16	0.01	0.02
0.04	0.01	0.03	0.54	0.02	0.03	0.02	0.00	0.02	0.00	0.01	0.05	0.00	0.17	0.00	0.00
0.01	0.10	0.20	0.00	0.09	0.00	0.00	0.23	0.00	0.04	0.03	0.00	0.00	0.04	0.17	0.04
0.00	0.01	0.01	0.07	0.14	0.07	0.19	0.06	0.05	0.02	0.22	0.00	0.07	0.01	0.02	0.02

ATRIX

0.06	0.06	0.22	0.34	0.40	0.46	0.48	0.52	0.58	0.65	0.75	0.77	0.80	0.96	0.98	1.00
0.27	0.28	0.30	0.32	0.39	0.47	0.50	0.52	0.54	0.61	0.69	0.72	0.76	0.91	0.94	1.00
0.33	0.39	0.42	0.46	0.58	0.63	0.68	0.70	0.76	0.81	0.89	0.90	0.92	0.93	0.98	1.00
0.12	0.14	0.19	0.22	0.23	0.24	0.37	0.41	0.53	0.57	0.62	0.65	0.76	0.82	0.97	1.00
0.05	0.07	0.09	0.14	0.29	0.33	0.45	0.50	0.51	0.74	0.78	0.83	0.83	0.91	0.95	1.00
0.07	0.16	0.16	0.52	0.55	0.56	0.72	0.73	0.75	0.84	0.89	0.89	0.92	0.92	0.92	1.00
0.05	0.05	0.11	0.14	0.24	0.25	0.53	0.70	0.71	0.72	0.82	0.92	0.92	0.95	0.97	1.00
0.00	0.08	0.11	0.19	0.25	0.47	0.50	0.56	0.59	0.59	0.63	0.64	0.68	0.92	0.97	1.00
0.00	0.07	0.11	0.27	0.41	0.72	0.82	0.85	0.87	0.90	0.91	0.92	0.93	0.97	0.98	1.00
0.01	0.04	0.10	0.15	0.22	0.26	0.63	0.63	0.87	0.91	0.93	0.94	0.94	0.96	0.97	1.00
0.01	0.04	0.06	0.06	0.10	0.26	0.28	0.61	0.83	0.85	0.91	0.92	0.95	0.95	0.97	1.00
0.29	0.42	0.46	0.47	0.51	0.53	0.54	0.55	0.59	0.62	0.84	0.85	0.90	0.93	0.94	1.00
0.01	0.02	0.03	0.11	0.12	0.57	0.63	0.66	0.67	0.71	0.75	0.77	0.80	0.96	0.97	1.00
0.04	0.05	0.09	0.63	0.66	0.70	0.72	0.73	0.75	0.75	0.76	0.82	0.82	0.99	0.99	1.00
0.01	0.11	0.31	0.31	0.41	0.41	0.41	0.65	0.65	0.70	0.73	0.74	0.75	0.79	0.96	1.00
0.00	0.01	0.03	0.11	0.24	0.32	0.50	0.57	0.62	0.64	0.86	0.86	0.94	0.95	0.98	1.00

TRANSITION MATRIX FOR SCORE = 35

TTRIX

0.10	0.00	0.07	0.11	0.10	0.02	0.02	0.02	0.07	0.14	0.13	0.02	0.03	0.06	0.04	0.02
0.24	0.00	0.01	0.07	0.06	0.02	0.06	0.03	0.01	0.06	0.03	0.02	0.03	0.15	0.07	0.05
0.18	0.05	0.03	0.03	0.28	0.02	0.04	0.00	0.08	0.05	0.06	0.00	0.02	0.00	0.08	0.00
0.01	0.02	0.00	0.03	0.04	0.02	0.13	0.07	0.17	0.05	0.07	0.06	0.13	0.03	0.12	0.01
0.05	0.03	0.01	0.07	0.20	0.00	0.12	0.01	0.05	0.25	0.03	0.00	0.02	0.03	0.03	0.05
0.01	0.05	0.02	0.09	0.11	0.06	0.15	0.00	0.01	0.09	0.07	0.00	0.15	0.01	0.00	0.09
0.06	0.02	0.05	0.02	0.11	0.00	0.24	0.15	0.02	0.01	0.12	0.12	0.01	0.01	0.01	0.00
0.02	0.14	0.00	0.12	0.02	0.04	0.01	0.09	0.02	0.00	0.07	0.01	0.04	0.31	0.03	0.01
0.00	0.07	0.00	0.10	0.22	0.21	0.13	0.03	0.02	0.02	0.01	0.00	0.00	0.09	0.03	0.02
0.02	0.03	0.04	0.05	0.12	0.02	0.32	0.00	0.17	0.02	0.02	0.01	0.01	0.00	0.04	0.05
0.00	0.03	0.02	0.00	0.03	0.26	0.02	0.09	0.28	0.02	0.07	0.00	0.03	0.00	0.04	0.04
0.22	0.11	0.00	0.00	0.01	0.01	0.00	0.00	0.04	0.02	0.37	0.03	0.03	0.03	0.01	0.05
0.02	0.00	0.00	0.12	0.02	0.07	0.07	0.03	0.07	0.00	0.13	0.04	0.02	0.28	0.02	0.04
0.16	0.03	0.03	0.10	0.09	0.10	0.11	0.05	0.13	0.00	0.02	0.02	0.00	0.08	0.00	0.01
0.05	0.16	0.27	0.00	0.11	0.00	0.01	0.03	0.00	0.05	0.04	0.01	0.00	0.06	0.12	0.04
0.00	0.00	0.01	0.06	0.25	0.07	0.13	0.03	0.07	0.03	0.20	0.00	0.05	0.01	0.01	0.03

ATRIX

0.10	0.10	0.17	0.29	0.39	0.41	0.43	0.46	0.53	0.67	0.80	0.83	0.86	0.93	0.97	1.00
0.24	0.25	0.27	0.34	0.41	0.44	0.50	0.54	0.55	0.62	0.65	0.68	0.71	0.87	0.94	1.00
0.18	0.23	0.27	0.31	0.59	0.61	0.65	0.66	0.74	0.80	0.86	0.87	0.90	0.90	0.99	1.00
0.01	0.03	0.04	0.07	0.11	0.14	0.27	0.34	0.51	0.57	0.65	0.71	0.84	0.87	0.99	1.00
0.05	0.09	0.10	0.18	0.37	0.38	0.50	0.52	0.57	0.81	0.85	0.85	0.88	0.91	0.95	1.00
0.01	0.10	0.13	0.22	0.33	0.40	0.55	0.55	0.56	0.66	0.73	0.74	0.89	0.90	0.91	1.00
0.06	0.09	0.15	0.18	0.29	0.30	0.54	0.69	0.71	0.72	0.84	0.96	0.97	0.98	1.00	1.00
0.02	0.17	0.17	0.29	0.31	0.36	0.37	0.47	0.50	0.51	0.58	0.59	0.64	0.94	0.98	1.00
0.00	0.07	0.08	0.18	0.40	0.61	0.74	0.78	0.80	0.83	0.84	0.84	0.85	0.94	0.98	1.00
0.02	0.06	0.11	0.17	0.30	0.32	0.63	0.64	0.81	0.84	0.86	0.87	0.89	0.90	0.94	1.00
0.00	0.04	0.06	0.06	0.11	0.36	0.39	0.48	0.76	0.79	0.87	0.87	0.91	0.91	0.96	1.00
0.22	0.34	0.34	0.35	0.36	0.38	0.38	0.39	0.43	0.46	0.83	0.86	0.90	0.93	0.95	1.00
0.02	0.03	0.04	0.16	0.18	0.25	0.33	0.36	0.44	0.45	0.58	0.63	0.65	0.93	0.96	1.00
0.16	0.20	0.24	0.34	0.44	0.54	0.65	0.71	0.84	0.84	0.86	0.89	0.89	0.98	0.99	1.00
0.05	0.22	0.49	0.50	0.60	0.61	0.62	0.65	0.66	0.72	0.76	0.77	0.78	0.84	0.96	1.00
0.00	0.01	0.02	0.08	0.34	0.41	0.54	0.57	0.65	0.68	0.88	0.89	0.94	0.95	0.97	1.00

TRANSITION MATRIX FOR SCORE = 40

TTRIX

0.07	0.00	0.13	0.07	0.07	0.05	0.01	0.08	0.08	0.06	0.08	0.09	0.02	0.04	0.03	0.04
0.13	0.01	0.02	0.03	0.05	0.13	0.07	0.03	0.02	0.11	0.07	0.02	0.03	0.14	0.03	0.05
0.13	0.09	0.03	0.04	0.14	0.04	0.05	0.05	0.07	0.05	0.08	0.01	0.03	0.02	0.10	0.02
0.05	0.01	0.03	0.02	0.04	0.00	0.06	0.06	0.13	0.08	0.05	0.04	0.16	0.05	0.13	0.04
0.02	0.01	0.00	0.02	0.06	0.19	0.11	0.05	0.03	0.13	0.05	0.00	0.06	0.09	0.08	0.02
0.07	0.05	0.01	0.14	0.05	0.02	0.15	0.08	0.05	0.03	0.03	0.01	0.08	0.06	0.00	0.09
0.04	0.06	0.06	0.02	0.11	0.00	0.12	0.19	0.04	0.00	0.11	0.09	0.01	0.01	0.07	0.00
0.03	0.14	0.04	0.12	0.11	0.13	0.03	0.06	0.01	0.00	0.05	0.00	0.02	0.14	0.05	0.01
0.00	0.06	0.02	0.13	0.16	0.14	0.18	0.05	0.02	0.03	0.02	0.00	0.00	0.06	0.03	0.02
0.01	0.03	0.05	0.04	0.07	0.03	0.24	0.04	0.23	0.03	0.01	0.01	0.04	0.01	0.04	0.05
0.06	0.04	0.01	0.00	0.03	0.11	0.01	0.10	0.39	0.02	0.05	0.00	0.07	0.00	0.01	0.03
0.15	0.12	0.05	0.00	0.03	0.01	0.01	0.00	0.03	0.03	0.33	0.06	0.03	0.04	0.02	0.05
0.01	0.01	0.04	0.07	0.03	0.18	0.07	0.07	0.02	0.04	0.08	0.03	0.05	0.17	0.01	0.07
0.06	0.01	0.05	0.27	0.06	0.04	0.10	0.02	0.04	0.00	0.02	0.06	0.04	0.16	0.01	0.00
0.06	0.07	0.13	0.00	0.10	0.00	0.00	0.12	0.00	0.06	0.04	0.00	0.00	0.03	0.30	0.03
0.00	0.01	0.01	0.10	0.13	0.06	0.13	0.06	0.04	0.02	0.17	0.01	0.09	0.00	0.02	0.06

ATRIX

0.07	0.07	0.21	0.28	0.35	0.40	0.42	0.50	0.59	0.65	0.74	0.83	0.85	0.90	0.94	1.00
0.13	0.14	0.17	0.21	0.27	0.40	0.47	0.51	0.53	0.64	0.72	0.74	0.78	0.92	0.95	1.00
0.13	0.23	0.26	0.30	0.44	0.49	0.54	0.60	0.67	0.72	0.81	0.82	0.85	0.87	0.98	1.00
0.05	0.07	0.11	0.13	0.17	0.18	0.24	0.31	0.43	0.52	0.57	0.61	0.77	0.83	0.96	1.00
0.02	0.04	0.04	0.07	0.14	0.34	0.45	0.51	0.54	0.67	0.73	0.74	0.80	0.89	0.98	1.00
0.07	0.13	0.15	0.28	0.33	0.36	0.52	0.60	0.66	0.70	0.73	0.75	0.84	0.90	0.90	1.00
0.04	0.11	0.17	0.19	0.30	0.31	0.42	0.62	0.66	0.67	0.78	0.88	0.89	0.91	0.99	1.00
0.03	0.17	0.22	0.34	0.45	0.58	0.61	0.67	0.69	0.70	0.75	0.76	0.79	0.92	0.98	1.00
0.00	0.07	0.09	0.22	0.39	0.53	0.71	0.79	0.81	0.84	0.87	0.87	0.88	0.95	0.98	1.00
0.01	0.04	0.09	0.14	0.22	0.25	0.49	0.54	0.77	0.81	0.83	0.84	0.88	0.90	0.94	1.00
0.06	0.11	0.13	0.13	0.16	0.27	0.28	0.39	0.78	0.81	0.86	0.87	0.95	0.95	0.96	1.00
0.15	0.27	0.32	0.33	0.36	0.37	0.39	0.39	0.43	0.46	0.79	0.85	0.88	0.93	0.95	1.00
0.01	0.02	0.07	0.14	0.17	0.36	0.43	0.50	0.52	0.56	0.64	0.68	0.73	0.91	0.92	1.00
0.06	0.08	0.14	0.41	0.48	0.52	0.62	0.65	0.69	0.69	0.72	0.78	0.82	0.98	0.99	1.00
0.06	0.14	0.27	0.27	0.38	0.33	0.39	0.51	0.51	0.58	0.62	0.62	0.63	0.66	0.97	1.00
0.00	0.01	0.03	0.14	0.27	0.35	0.49	0.56	0.60	0.63	0.80	0.81	0.91	0.91	0.94	1.00

TRANSITION MATRIX FOR SCORE = 45

TTRIX

0.09	0.00	0.05	0.06	0.09	0.06	0.02	0.10	0.13	0.05	0.06	0.08	0.03	0.03	0.06	0.06
0.05	0.01	0.05	0.11	0.05	0.02	0.06	0.06	0.02	0.13	0.05	0.03	0.11	0.06	0.09	0.03
0.05	0.02	0.02	0.05	0.07	0.05	0.07	0.02	0.08	0.06	0.08	0.01	0.04	0.16	0.17	0.01
0.05	0.01	0.02	0.03	0.06	0.01	0.07	0.08	0.16	0.15	0.06	0.05	0.04	0.01	0.08	0.04
0.01	0.01	0.00	0.01	0.05	0.14	0.21	0.11	0.04	0.14	0.02	0.03	0.04	0.09	0.03	0.01
0.01	0.08	0.03	0.02	0.05	0.10	0.18	0.06	0.02	0.03	0.03	0.04	0.17	0.00	0.00	0.13
0.06	0.01	0.05	0.04	0.10	0.01	0.05	0.20	0.05	0.01	0.09	0.07	0.01	0.05	0.09	0.07
0.03	0.14	0.10	0.17	0.06	0.01	0.05	0.06	0.02	0.00	0.08	0.01	0.00	0.04	0.11	0.03
0.01	0.03	0.02	0.09	0.17	0.08	0.24	0.01	0.04	0.05	0.07	0.01	0.01	0.05	0.03	0.04
0.01	0.05	0.09	0.12	0.10	0.03	0.02	0.02	0.08	0.04	0.04	0.02	0.05	0.01	0.15	0.09
0.01	0.01	0.02	0.00	0.05	0.02	0.02	0.01	0.05	0.04	0.06	0.01	0.17	0.00	0.42	0.05
0.13	0.06	0.03	0.01	0.11	0.03	0.01	0.00	0.09	0.06	0.01	0.07	0.10	0.10	0.07	0.05
0.01	0.01	0.06	0.06	0.04	0.04	0.07	0.08	0.05	0.05	0.10	0.07	0.09	0.17	0.00	0.03
0.01	0.02	0.22	0.06	0.06	0.06	0.19	0.04	0.05	0.00	0.03	0.15	0.02	0.02	0.01	0.01
0.21	0.03	0.11	0.00	0.10	0.00	0.02	0.03	0.03	0.13	0.05	0.01	0.00	0.08	0.10	0.05
0.00	0.01	0.02	0.16	0.03	0.08	0.20	0.03	0.04	0.04	0.11	0.01	0.12	0.00	0.03	0.07

ATRIX

0.09	0.09	0.14	0.21	0.29	0.36	0.38	0.48	0.61	0.66	0.72	0.81	0.84	0.87	0.94	1.00
0.05	0.07	0.13	0.24	0.29	0.32	0.38	0.44	0.47	0.60	0.66	0.69	0.80	0.87	0.96	1.00
0.05	0.07	0.10	0.16	0.24	0.29	0.36	0.38	0.46	0.52	0.61	0.62	0.66	0.82	0.99	1.00
0.05	0.07	0.13	0.14	0.20	0.22	0.30	0.38	0.54	0.69	0.76	0.81	0.85	0.87	0.95	1.00
0.01	0.03	0.03	0.04	0.11	0.25	0.46	0.57	0.61	0.75	0.78	0.81	0.86	0.95	0.99	1.00
0.01	0.09	0.13	0.15	0.21	0.31	0.49	0.55	0.58	0.61	0.64	0.69	0.86	0.87	0.87	1.00
0.06	0.07	0.13	0.17	0.27	0.28	0.33	0.53	0.58	0.60	0.69	0.77	0.78	0.83	0.92	1.00
0.03	0.18	0.28	0.45	0.51	0.53	0.58	0.67	0.70	0.70	0.78	0.80	0.80	0.85	0.96	1.00
0.01	0.04	0.07	0.17	0.34	0.43	0.66	0.66	0.73	0.78	0.85	0.86	0.87	0.92	0.95	1.00
0.01	0.07	0.17	0.29	0.39	0.43	0.45	0.48	0.57	0.62	0.66	0.69	0.74	0.76	0.91	1.00
0.01	0.02	0.05	0.05	0.10	0.13	0.16	0.17	0.23	0.27	0.34	0.35	0.52	0.52	0.95	1.00
0.13	0.20	0.23	0.25	0.36	0.39	0.40	0.41	0.51	0.57	0.59	0.67	0.77	0.88	0.95	1.00
0.01	0.02	0.09	0.16	0.20	0.25	0.32	0.41	0.47	0.52	0.63	0.70	0.80	0.96	0.97	1.00
0.01	0.04	0.26	0.32	0.39	0.45	0.63	0.68	0.73	0.73	0.77	0.92	0.94	0.97	0.98	1.00
0.21	0.25	0.36	0.36	0.46	0.46	0.49	0.52	0.56	0.69	0.74	0.75	0.76	0.84	0.94	1.00
0.00	0.02	0.04	0.20	0.23	0.32	0.52	0.55	0.60	0.64	0.75	0.76	0.88	0.89	0.93	1.00

TRANSITION MATRIX FOR SCORE = 50

TRIX

0.07	0.00	0.07	0.08	0.07	0.05	0.01	0.08	0.09	0.05	0.07	0.12	0.02	0.05	0.04	0.06
0.11	0.01	0.02	0.08	0.04	0.11	0.09	0.02	0.01	0.10	0.08	0.02	0.04	0.09	0.07	0.04
0.08	0.05	0.02	0.04	0.08	0.05	0.05	0.05	0.05	0.04	0.07	0.00	0.03	0.11	0.11	0.08
0.04	0.01	0.09	0.02	0.04	0.01	0.06	0.06	0.12	0.11	0.05	0.04	0.08	0.04	0.09	0.10
0.02	0.00	0.00	0.01	0.04	0.11	0.12	0.11	0.03	0.07	0.03	0.12	0.08	0.06	0.14	0.01
0.08	0.04	0.02	0.10	0.04	0.03	0.13	0.06	0.07	0.02	0.02	0.02	0.11	0.12	0.00	0.08
0.03	0.13	0.04	0.01	0.08	0.00	0.08	0.13	0.05	0.00	0.07	0.05	0.06	0.02	0.08	0.11
0.02	0.13	0.08	0.11	0.09	0.08	0.04	0.05	0.01	0.00	0.05	0.00	0.02	0.09	0.06	0.11
0.00	0.07	0.04	0.11	0.14	0.11	0.16	0.02	0.03	0.03	0.15	0.00	0.00	0.04	0.03	0.02
0.01	0.03	0.04	0.05	0.08	0.06	0.12	0.06	0.11	0.07	0.02	0.01	0.11	0.01	0.05	0.10
0.13	0.09	0.02	0.00	0.03	0.11	0.02	0.09	0.11	0.03	0.06	0.00	0.09	0.00	0.13	0.04
0.12	0.09	0.11	0.00	0.07	0.01	0.01	0.00	0.03	0.02	0.14	0.09	0.04	0.05	0.03	0.13
0.01	0.01	0.03	0.05	0.02	0.12	0.06	0.11	0.08	0.05	0.07	0.08	0.08	0.09	0.01	0.09
0.04	0.01	0.12	0.10	0.04	0.09	0.12	0.03	0.03	0.00	0.09	0.12	0.07	0.07	0.01	0.01
0.10	0.09	0.09	0.00	0.09	0.00	0.01	0.08	0.08	0.12	0.05	0.01	0.00	0.06	0.11	0.04
0.00	0.01	0.01	0.13	0.07	0.07	0.10	0.05	0.04	0.05	0.13	0.01	0.14	0.01	0.02	0.12

ATRIX

0.07	0.07	0.15	0.23	0.30	0.36	0.37	0.46	0.55	0.61	0.69	0.81	0.83	0.88	0.93	1.00
0.11	0.12	0.14	0.23	0.27	0.38	0.48	0.51	0.52	0.63	0.71	0.74	0.78	0.88	0.96	1.00
0.08	0.14	0.17	0.21	0.29	0.37	0.42	0.47	0.52	0.57	0.65	0.66	0.69	0.80	0.91	1.00
0.04	0.05	0.15	0.17	0.21	0.23	0.29	0.35	0.47	0.58	0.63	0.67	0.76	0.80	0.90	1.00
0.02	0.03	0.04	0.05	0.09	0.21	0.33	0.44	0.47	0.55	0.58	0.70	0.78	0.85	0.99	1.00
0.08	0.13	0.15	0.25	0.30	0.34	0.46	0.53	0.60	0.63	0.66	0.69	0.80	0.92	0.92	1.00
0.03	0.16	0.21	0.22	0.30	0.31	0.39	0.52	0.58	0.59	0.66	0.72	0.78	0.80	0.89	1.00
0.02	0.15	0.23	0.34	0.44	0.52	0.57	0.62	0.64	0.64	0.69	0.70	0.73	0.83	0.89	1.00
0.00	0.07	0.12	0.24	0.37	0.48	0.64	0.67	0.70	0.73	0.89	0.89	0.90	0.94	0.98	1.00
0.01	0.05	0.10	0.16	0.24	0.31	0.43	0.49	0.60	0.67	0.70	0.71	0.82	0.84	0.90	1.00
0.13	0.22	0.25	0.25	0.28	0.40	0.42	0.51	0.62	0.66	0.72	0.73	0.82	0.82	0.95	1.00
0.12	0.21	0.33	0.33	0.40	0.42	0.43	0.44	0.47	0.50	0.64	0.73	0.78	0.83	0.87	1.00
0.01	0.02	0.05	0.11	0.13	0.25	0.31	0.42	0.50	0.56	0.63	0.72	0.80	0.90	0.91	1.00
0.04	0.05	0.18	0.28	0.33	0.42	0.54	0.58	0.61	0.61	0.71	0.83	0.90	0.98	0.99	1.00
0.10	0.20	0.30	0.30	0.40	0.40	0.42	0.50	0.59	0.71	0.76	0.77	0.78	0.84	0.95	1.00
0.00	0.01	0.03	0.16	0.24	0.31	0.41	0.47	0.51	0.56	0.69	0.70	0.84	0.85	0.88	1.00

TRANSITION MATRIX FOR SCORE = 55

TIRIA

0.06	0.00	0.01	0.02	0.13	0.07	0.02	0.16	0.11	0.02	0.02	0.17	0.03	0.01	0.07	0.03
0.02	0.01	0.02	0.07	0.03	0.11	0.24	0.03	0.01	0.07	0.10	0.02	0.05	0.03	0.09	0.02
0.00	0.01	0.01	0.03	0.02	0.10	0.35	0.03	0.02	0.03	0.15	0.01	0.04	0.13	0.16	0.13
0.01	0.02	0.19	0.01	0.03	0.03	0.04	0.07	0.03	0.20	0.06	0.05	0.01	0.04	0.04	0.10
0.03	0.07	0.00	0.00	0.02	0.10	0.07	0.12	0.02	0.05	0.02	0.15	0.13	0.08	0.14	0.01
0.00	0.00	0.02	0.01	0.08	0.03	0.12	0.02	0.04	0.00	0.05	0.05	0.16	0.14	0.00	0.10
0.04	0.07	0.02	0.01	0.03	0.00	0.00	0.03	0.20	0.00	0.05	0.02	0.01	0.02	0.30	0.16
0.04	0.03	0.06	0.00	0.17	0.00	0.08	0.07	0.00	0.00	0.06	0.01	0.05	0.02	0.09	0.09
0.01	0.00	0.04	0.00	0.26	0.04	0.07	0.07	0.08	0.08	0.01	0.01	0.01	0.03	0.06	0.04
0.01	0.04	0.00	0.00	0.08	0.00	0.03	0.04	0.01	0.17	0.04	0.01	0.01	0.05	0.07	0.16
0.08	0.25	0.02	0.00	0.03	0.02	0.01	0.02	0.01	0.04	0.14	0.00	0.13	0.00	0.11	0.04
0.00	0.00	0.01	0.00	0.20	0.02	0.02	0.00	0.07	0.03	0.00	0.14	0.18	0.06	0.03	0.19
0.01	0.01	0.04	0.03	0.08	0.04	0.06	0.08	0.07	0.05	0.08	0.05	0.36	0.02	0.01	0.03
0.01	0.01	0.28	0.08	0.01	0.05	0.11	0.03	0.01	0.00	0.16	0.12	0.04	0.00	0.00	0.00
0.19	0.01	0.04	0.00	0.04	0.01	0.04	0.01	0.03	0.23	0.05	0.02	0.00	0.12	0.07	0.06
0.00	0.01	0.02	0.13	0.01	0.09	0.01	0.05	0.05	0.03	0.01	0.01	0.31	0.01	0.06	0.12

ATRIA

0.06	0.04	0.06	0.11	0.24	0.31	0.33	0.36	0.61	0.64	0.66	0.83	0.86	0.87	0.95	1.00
0.02	0.04	0.06	0.14	0.18	0.29	0.53	0.56	0.63	0.66	0.76	0.79	0.86	0.88	0.97	1.00
0.00	0.02	0.04	0.07	0.10	0.28	0.28	0.30	0.34	0.36	0.62	0.64	0.69	0.71	0.87	1.00
0.01	0.01	0.23	0.24	0.23	0.31	0.35	0.43	0.47	0.67	0.74	0.79	0.80	0.85	0.90	1.00
0.03	0.04	0.04	0.05	0.07	0.20	0.27	0.30	0.42	0.46	0.50	0.64	0.77	0.86	0.99	1.00
0.09	0.14	0.16	0.18	0.26	0.29	0.41	0.44	0.48	0.49	0.54	0.67	0.76	0.90	0.90	1.00
0.04	0.11	0.14	0.15	0.19	0.19	0.20	0.24	0.43	0.44	0.49	0.52	0.53	0.56	0.65	1.00
0.04	0.14	0.20	0.30	0.47	0.48	0.56	0.64	0.64	0.68	0.72	0.73	0.78	0.81	0.91	1.00
0.01	0.02	0.06	0.09	0.33	0.37	0.44	0.47	0.53	0.62	0.63	0.85	0.86	0.89	0.96	1.00
0.01	0.06	0.07	0.17	0.25	0.31	0.35	0.43	0.46	0.61	0.66	0.67	0.69	0.74	0.82	1.00
0.02	0.03	0.40	0.40	0.43	0.46	0.48	0.50	0.52	0.56	0.70	0.71	0.85	0.85	0.96	1.00
0.03	0.03	0.10	0.11	0.31	0.34	0.36	0.38	0.44	0.47	0.48	0.66	0.72	0.78	0.81	1.00
0.01	0.02	0.07	0.11	0.19	0.24	0.31	0.39	0.47	0.52	0.60	0.66	0.84	0.96	0.97	1.00
0.01	0.03	0.31	0.39	0.40	0.46	0.60	0.63	0.66	0.66	0.81	0.93	0.98	0.98	0.99	1.00
0.19	0.20	0.24	0.24	0.29	0.30	0.35	0.37	0.40	0.62	0.71	0.74	0.74	0.87	0.94	1.00
0.02	0.03	0.05	0.14	0.20	0.23	0.30	0.36	0.41	0.45	0.47	0.48	0.79	0.81	0.88	1.00

TRANSITION MATRIX FOR SCORE = 60

TTRIX

0.07	0.00	0.03	0.05	0.07	0.06	0.01	0.12	0.08	0.04	0.04	0.15	0.03	0.02	0.06	0.12
0.01	0.01	0.02	0.09	0.05	0.19	0.13	0.03	0.01	0.09	0.09	0.02	0.04	0.05	0.08	0.03
0.03	0.01	0.02	0.02	0.08	0.09	0.03	0.09	0.05	0.05	0.06	0.00	0.03	0.14	0.11	0.12
0.00	0.01	0.12	0.02	0.06	0.01	0.04	0.06	0.06	0.12	0.03	0.03	0.09	0.04	0.03	0.22
0.02	0.00	0.00	0.00	0.02	0.08	0.08	0.12	0.02	0.04	0.02	0.24	0.07	0.04	0.21	0.00
0.06	0.01	0.01	0.01	0.03	0.04	0.06	0.04	0.08	0.02	0.01	0.02	0.07	0.42	0.00	0.04
0.02	0.26	0.02	0.01	0.03	0.00	0.07	0.04	0.04	0.00	0.05	0.02	0.05	0.02	0.08	0.22
0.03	0.09	0.12	0.05	0.12	0.05	0.06	0.04	0.01	0.00	0.05	0.00	0.01	0.12	0.07	0.19
0.01	0.04	0.07	0.05	0.03	0.06	0.20	0.02	0.04	0.05	0.28	0.01	0.01	0.00	0.05	0.02
0.01	0.04	0.05	0.04	0.02	0.07	0.13	0.08	0.05	0.07	0.02	0.01	0.16	0.02	0.06	0.11
0.15	0.17	0.02	0.00	0.02	0.11	0.02	0.09	0.05	0.03	0.03	0.00	0.08	0.00	0.14	0.04
0.00	0.03	0.33	0.00	0.07	0.01	0.01	0.00	0.03	0.01	0.12	0.08	0.03	0.03	0.05	0.13
0.00	0.01	0.03	0.03	0.03	0.11	0.05	0.10	0.07	0.06	0.07	0.14	0.07	0.08	0.01	0.09
0.02	0.02	0.19	0.06	0.05	0.11	0.13	0.03	0.01	0.00	0.11	0.12	0.08	0.01	0.01	0.01
0.10	0.05	0.11	0.00	0.01	0.00	0.01	0.09	0.19	0.11	0.05	0.01	0.00	0.07	0.12	0.05
0.00	0.01	0.03	0.11	0.01	0.06	0.02	0.03	0.01	0.08	0.11	0.01	0.17	0.03	0.04	0.20

ATRIX

0.07	0.07	0.11	0.17	0.24	0.30	0.32	0.43	0.52	0.56	0.60	0.76	0.79	0.82	0.88	1.00
0.01	0.02	0.05	0.15	0.20	0.39	0.51	0.54	0.56	0.66	0.75	0.78	0.82	0.88	0.97	1.00
0.03	0.05	0.08	0.10	0.19	0.29	0.33	0.42	0.47	0.53	0.59	0.60	0.63	0.77	0.88	1.00
0.00	0.01	0.14	0.16	0.22	0.24	0.28	0.34	0.41	0.54	0.57	0.61	0.70	0.75	0.78	1.00
0.02	0.03	0.03	0.03	0.05	0.14	0.23	0.34	0.36	0.40	0.43	0.67	0.74	0.79	0.99	1.00
0.06	0.08	0.09	0.11	0.15	0.20	0.26	0.31	0.39	0.41	0.43	0.45	0.52	0.95	0.95	1.00
0.02	0.29	0.32	0.33	0.36	0.37	0.44	0.48	0.53	0.54	0.59	0.61	0.66	0.69	0.78	1.00
0.03	0.12	0.24	0.30	0.42	0.43	0.49	0.53	0.54	0.55	0.60	0.61	0.62	0.74	0.81	1.00
0.01	0.05	0.13	0.19	0.22	0.28	0.49	0.51	0.55	0.61	0.89	0.91	0.92	0.92	0.98	1.00
0.01	0.06	0.11	0.16	0.18	0.26	0.39	0.47	0.53	0.60	0.63	0.64	0.81	0.83	0.89	1.00
0.15	0.32	0.34	0.34	0.36	0.47	0.49	0.59	0.65	0.68	0.72	0.72	0.81	0.81	0.95	1.00
0.00	0.04	0.37	0.38	0.45	0.46	0.48	0.48	0.51	0.53	0.65	0.74	0.77	0.81	0.87	1.00
0.00	0.02	0.05	0.08	0.12	0.23	0.28	0.38	0.45	0.52	0.59	0.73	0.80	0.89	0.90	1.00
0.02	0.04	0.23	0.29	0.34	0.46	0.59	0.63	0.64	0.64	0.76	0.88	0.96	0.97	0.99	1.00
0.10	0.15	0.26	0.26	0.28	0.28	0.30	0.39	0.58	0.68	0.74	0.75	0.76	0.83	0.95	1.00
0.00	0.02	0.05	0.17	0.19	0.25	0.27	0.31	0.33	0.41	0.53	0.55	0.72	0.76	0.80	1.00

TRANSITION MATRIX FOR SCORE = 65

TRIX

0.03	0.00	0.04	0.07	0.06	0.08	0.02	0.14	0.08	0.01	0.01	0.17	0.02	0.00	0.08	0.14
0.01	0.02	0.02	0.11	0.03	0.14	0.16	0.03	0.02	0.07	0.11	0.02	0.06	0.01	0.13	0.02
0.01	0.07	0.03	0.02	0.01	0.10	0.06	0.10	0.02	0.01	0.02	0.00	0.03	0.18	0.08	0.21
0.02	0.01	0.13	0.03	0.06	0.01	0.02	0.05	0.02	0.11	0.05	0.02	0.05	0.02	0.02	0.30
0.02	0.00	0.00	0.00	0.02	0.06	0.08	0.18	0.03	0.03	0.02	0.19	0.07	0.04	0.17	0.00
0.11	0.03	0.01	0.04	0.04	0.02	0.03	0.07	0.07	0.00	0.01	0.03	0.05	0.40	0.00	0.04
0.00	0.08	0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.01	0.00	0.04	0.00	0.06	0.69
0.04	0.02	0.14	0.06	0.15	0.00	0.08	0.04	0.01	0.00	0.05	0.01	0.01	0.01	0.05	0.25
0.01	0.00	0.19	0.00	0.04	0.01	0.05	0.02	0.05	0.06	0.41	0.01	0.01	0.03	0.06	0.00
0.02	0.02	0.00	0.03	0.01	0.08	0.00	0.27	0.05	0.07	0.01	0.01	0.13	0.02	0.09	0.14
0.28	0.24	[illegible]	0.00	0.01	0.01	0.02	0.05	0.00	0.03	0.02	0.00	0.08	0.00	0.16	0.03
0.00	0.00	0.45	0.00	0.08	0.01	0.01	0.00	0.01	0.01	0.02	0.08	0.03	0.04	0.04	0.15
0.01	0.01	0.04	0.03	0.03	0.06	0.04	0.11	0.23	0.05	0.04	0.11	0.07	0.01	0.00	0.12
0.01	0.02	0.16	0.01	0.03	0.12	0.11	0.03	0.01	0.00	0.19	0.09	0.15	0.01	0.01	0.01
0.12	0.00	0.01	0.00	0.03	0.00	0.04	0.00	0.30	0.08	0.05	0.03	0.00	0.08	0.12	0.08
0.01	0.04	0.04	0.07	0.00	0.03	0.02	0.06	0.00	0.20	0.02	0.01	0.15	0.07	0.03	0.19

ATRIX

0.03	0.03	0.07	0.15	0.22	0.30	0.33	0.47	0.55	0.56	0.58	0.75	0.78	0.78	0.86	1.00
0.01	0.03	0.06	0.18	0.21	0.35	0.51	0.54	0.56	0.63	0.75	0.77	0.83	0.85	0.98	1.00
0.01	0.08	0.12	0.14	0.15	0.26	0.32	0.42	0.45	0.46	0.49	0.50	0.53	0.71	0.79	1.00
0.02	0.03	0.17	0.20	0.27	0.29	0.31	0.37	0.39	0.50	0.56	0.59	0.64	0.67	0.70	1.00
0.02	0.03	0.03	0.05	0.06	0.15	0.24	0.42	0.45	0.49	0.51	0.70	0.78	0.82	0.99	1.00
0.11	0.14	0.16	0.20	0.25	0.28	0.31	0.38	0.45	0.46	0.47	0.51	0.56	0.96	0.96	1.00
0.00	0.09	0.11	0.11	0.12	0.12	0.13	0.16	0.18	0.18	0.19	0.20	0.24	0.25	0.31	1.00
0.04	0.07	0.22	0.29	0.44	0.45	0.53	0.57	0.59	0.59	0.65	0.66	0.68	0.69	0.75	1.00
0.01	0.01	0.21	0.21	0.25	0.27	0.32	0.35	0.40	0.46	0.87	0.89	0.90	0.94	1.00	1.00
0.02	0.04	0.05	0.05	0.09	0.18	0.18	0.45	0.50	0.58	0.59	0.61	0.74	0.76	0.86	1.00
0.28	0.52	0.53	0.53	0.55	0.57	0.60	0.65	0.65	0.68	0.71	0.72	0.81	0.81	0.97	1.00
0.00	0.01	0.46	0.46	0.55	0.57	0.58	0.59	0.60	0.62	0.64	0.72	0.76	0.80	0.85	1.00
0.01	0.02	0.07	0.11	0.14	0.20	0.24	0.35	0.58	0.64	0.68	0.79	0.86	0.88	0.88	1.00
0.01	0.03	0.19	0.20	0.23	0.35	0.46	0.50	0.51	0.52	0.70	0.80	0.95	0.97	0.99	1.00
0.12	0.13	0.14	0.14	0.18	0.18	0.22	0.23	0.53	0.62	0.67	0.70	0.71	0.80	0.91	1.00
0.01	0.05	0.10	0.18	0.18	0.21	0.23	0.30	0.31	0.51	0.53	0.55	0.70	0.77	0.81	1.00

TRANSITION MATRIX FOR SCORE = 70

TRIX

0.05	0.00	0.00	0.02	0.04	0.09	0.02	0.13	0.08	0.03	0.03	0.13	0.03	0.01	0.10	0.18
0.02	0.01	0.02	0.09	0.03	0.18	0.12	0.03	0.01	0.05	0.10	0.02	0.05	0.02	0.17	0.01
0.00	0.02	0.01	0.01	0.00	0.07	0.03	0.08	0.01	0.01	0.02	0.00	0.01	0.18	0.03	0.46
0.01	0.01	0.15	0.03	0.06	0.01	0.00	0.08	0.03	0.11	0.04	0.03	0.02	0.01	0.01	0.31
0.01	0.00	0.00	0.00	0.00	0.03	0.03	0.04	0.01	0.02	0.01	0.63	0.07	0.01	0.07	0.00
0.09	0.01	0.01	0.00	0.03	0.03	0.04	0.17	0.17	0.00	0.01	0.07	0.05	0.22	0.00	0.03
0.01	0.22	0.02	0.01	0.02	0.00	0.01	0.03	0.06	0.00	0.01	0.00	0.09	0.01	0.08	0.39
0.05	0.05	0.16	0.07	0.13	0.00	0.07	0.03	0.01	0.00	0.03	0.01	0.04	0.00	0.06	0.24
0.01	0.00	0.27	0.00	0.05	0.00	0.02	0.00	0.03	0.01	0.48	0.01	0.01	0.01	0.04	0.00
0.00	0.00	0.00	0.01	0.01	0.04	0.00	0.09	0.00	0.03	0.00	0.00	0.62	0.03	0.04	0.06
0.78	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.05	0.00
0.00	0.00	0.70	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.03	0.00	0.01	0.08	0.05
0.00	0.01	0.07	0.01	0.03	0.01	0.01	0.07	0.34	0.09	0.03	0.09	0.05	0.01	0.01	0.10
0.00	0.00	0.04	0.00	0.00	0.03	0.02	0.01	0.00	0.00	0.66	0.01	0.16	0.00	0.00	0.00
0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.77	0.04	0.01	0.01	0.00	0.01	0.03	0.02
0.01	0.05	0.04	0.03	0.00	0.01	0.00	0.02	0.00	0.23	0.05	0.02	0.03	0.27	0.02	0.15

ATRIX

0.05	0.05	0.05	0.08	0.13	0.22	0.24	0.38	0.46	0.49	0.53	0.67	0.71	0.72	0.82	1.00
0.02	0.04	0.07	0.16	0.20	0.38	0.49	0.53	0.54	0.60	0.70	0.73	0.78	0.81	0.98	1.00
0.00	0.02	0.04	0.06	0.06	0.14	0.17	0.26	0.27	0.29	0.31	0.32	0.33	0.51	0.54	1.00
0.01	0.03	0.19	0.22	0.29	0.30	0.31	0.39	0.43	0.54	0.59	0.63	0.66	0.67	0.69	1.00
0.01	0.01	0.02	0.02	0.02	0.06	0.10	0.15	0.16	0.19	0.20	0.83	0.90	0.92	1.00	1.00
0.09	0.11	0.13	0.14	0.17	0.20	0.25	0.42	0.58	0.59	0.61	0.68	0.74	0.96	0.96	1.00
0.01	0.23	0.26	0.27	0.29	0.30	0.32	0.35	0.41	0.41	0.42	0.43	0.52	0.53	0.61	1.00
0.05	0.10	0.26	0.33	0.47	0.47	0.55	0.58	0.59	0.60	0.63	0.64	0.69	0.69	0.76	1.00
0.01	0.01	0.29	0.30	0.35	0.35	0.38	0.38	0.41	0.42	0.90	0.92	0.93	0.95	0.99	1.00
0.00	0.01	0.01	0.02	0.04	0.08	0.09	0.18	0.19	0.22	0.23	0.24	0.86	0.89	0.94	1.00
0.78	0.87	0.88	0.88	0.88	0.89	0.90	0.90	0.90	0.92	0.92	0.93	0.94	0.94	0.99	1.00
0.00	0.01	0.71	0.72	0.76	0.76	0.77	0.77	0.79	0.80	0.80	0.84	0.85	0.86	0.94	1.00
0.00	0.02	0.09	0.11	0.15	0.16	0.17	0.25	0.59	0.68	0.72	0.81	0.87	0.89	0.90	1.00
0.00	0.01	0.05	0.05	0.06	0.10	0.13	0.14	0.15	0.15	0.81	0.83	0.99	0.99	1.00	1.00
0.03	0.04	0.04	0.04	0.05	0.06	0.08	0.08	0.86	0.90	0.91	0.92	0.93	0.94	0.98	1.00
0.01	0.06	0.11	0.15	0.16	0.18	0.19	0.21	0.21	0.45	0.50	0.52	0.56	0.83	0.85	1.00

TRANSITION MATRIX FOR SCORE = 75

TTRIX

0.03	0.00	0.00	0.05	0.06	0.09	0.02	0.11	0.05	0.01	0.14	0.11	0.02	0.00	0.13	0.15
0.01	0.02	0.02	0.06	0.01	0.21	0.12	0.04	0.02	0.04	0.12	0.02	0.07	0.00	0.17	0.02
0.00	0.00	0.01	0.00	0.00	0.06	0.01	0.07	0.00	0.00	0.03	0.01	0.00	0.12	0.03	0.59
0.00	0.01	0.19	0.01	0.10	0.02	0.02	0.12	0.04	0.07	0.02	0.03	0.01	0.02	0.09	0.20
0.01	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.01	0.01	0.01	0.67	0.08	0.01	0.06	0.00
0.05	0.00	0.01	0.01	0.01	0.02	0.00	0.14	0.05	0.00	0.00	0.01	0.02	0.61	0.00	0.02
0.01	0.16	0.01	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.06	0.01	0.05	0.59
0.06	0.03	0.17	0.08	0.08	0.06	0.05	0.04	0.02	0.00	0.03	0.01	0.01	0.02	0.06	0.22
0.01	0.00	0.25	0.00	0.17	0.00	0.02	0.02	0.05	0.03	0.30	0.01	0.01	0.00	0.05	0.02
0.00	0.00	0.00	0.02	0.02	0.08	0.00	0.11	0.00	0.05	0.03	0.01	0.43	0.02	0.08	0.08
0.42	0.24	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.02	0.02	0.01	0.00	0.05	0.00	0.09	0.03
0.00	0.00	0.76	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.03	0.05
0.00	0.01	0.13	0.02	0.07	0.03	0.03	0.09	0.16	0.09	0.02	0.11	0.06	0.00	0.01	0.12
0.01	0.01	0.05	0.03	0.00	0.03	0.04	0.02	0.00	0.00	0.46	0.06	0.19	0.02	0.01	0.01
0.04	0.00	0.02	0.00	0.02	0.01	0.03	0.06	0.53	0.10	0.03	0.03	0.00	0.04	0.01	0.03
0.00	0.08	0.03	0.06	0.00	0.04	0.00	0.01	0.01	0.17	0.00	0.02	0.11	0.31	0.01	0.11

ATRIX

0.03	0.03	0.03	0.08	0.15	0.25	0.27	0.38	0.43	0.45	0.59	0.70	0.72	0.72	0.85	1.00
0.01	0.03	0.06	0.13	0.14	0.35	0.47	0.51	0.54	0.59	0.71	0.74	0.81	0.81	0.98	1.00
0.00	0.01	0.02	0.03	0.03	0.10	0.12	0.19	0.19	0.20	0.23	0.24	0.25	0.37	0.41	1.00
0.00	0.02	0.21	0.23	0.33	0.36	0.38	0.50	0.54	0.61	0.64	0.67	0.68	0.70	0.80	1.00
0.01	0.01	0.01	0.02	0.02	0.04	0.07	0.11	0.13	0.14	0.16	0.83	0.92	0.93	1.00	1.00
0.05	0.05	0.06	0.08	0.09	0.12	0.12	0.26	0.31	0.32	0.33	0.34	0.37	0.98	0.98	1.00
0.01	0.18	0.19	0.20	0.22	0.22	0.22	0.22	0.27	0.27	0.28	0.29	0.35	0.36	0.41	1.00
0.06	0.09	0.26	0.35	0.44	0.50	0.55	0.60	0.62	0.63	0.66	0.68	0.70	0.72	0.78	1.00
0.01	0.01	0.27	0.28	0.45	0.46	0.48	0.50	0.56	0.59	0.89	0.90	0.92	0.92	0.98	1.00
0.00	0.00	0.01	0.03	0.06	0.15	0.15	0.26	0.26	0.32	0.35	0.37	0.80	0.83	0.92	1.00
0.42	0.66	0.69	0.69	0.71	0.72	0.74	0.74	0.76	0.79	0.81	0.82	0.87	0.87	0.96	1.00
0.00	0.00	0.77	0.77	0.80	0.81	0.82	0.82	0.83	0.83	0.84	0.87	0.88	0.91	0.95	1.00
0.00	0.02	0.15	0.18	0.25	0.28	0.31	0.40	0.56	0.66	0.68	0.79	0.85	0.86	0.88	1.00
0.01	0.02	0.08	0.12	0.12	0.16	0.20	0.23	0.23	0.23	0.69	0.76	0.95	0.98	0.99	1.00
0.04	0.04	0.06	0.07	0.09	0.10	0.14	0.20	0.73	0.83	0.87	0.90	0.91	0.95	0.97	1.00
0.00	0.09	0.12	0.18	0.18	0.22	0.23	0.25	0.26	0.43	0.43	0.46	0.57	0.87	0.89	1.00

TRANSITION MATRIX FOR SCORE = 80

TRIX

0.01 0.00 0.01 0.02 0.06 0.05 0.04 0.17 0.05 0.00 0.01 0.17 0.05 0.01 0.10 0.17
0.01 0.02 0.03 0.06 0.04 0.15 0.08 0.04 0.03 0.04 0.10 0.02 0.06 0.02 0.19 0.04
0.00 0.01 0.00 0.00 0.00 0.03 0.01 0.14 0.00 0.00 0.01 0.00 0.00 0.04 0.01 0.70
0.00 0.01 0.18 0.02 0.18 0.03 0.06 0.04 0.01 0.05 0.04 0.09 0.01 0.02 0.00 0.18
0.00 0.00 0.00 0.00 0.00 0.02 0.01 0.01 0.00 0.00 0.01 0.76 0.07 0.01 0.04 0.00
0.03 0.00 0.00 0.00 0.01 0.01 0.00 0.05 0.04 0.00 0.00 0.01 0.02 0.74 0.00 0.01
0.00 0.19 0.02 0.01 0.00 0.00 0.00 0.02 0.08 0.00 0.04 0.01 0.22 0.01 0.05 0.31
0.12 0.03 0.17 0.02 0.13 0.02 0.09 0.00 0.05 0.02 0.03 0.02 0.00 0.00 0.02 0.21
0.02 0.00 0.56 0.00 0.00 0.00 0.01 0.00 0.05 0.01 0.14 0.03 0.02 0.00 0.11 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 0.00 0.95 0.00 0.00 0.00
0.42 0.29 0.01 0.00 0.00 0.00 0.03 0.00 0.01 0.02 0.01 0.02 0.05 0.00 0.07 0.01
0.01 0.00 0.91 0.00 0.01 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.01
0.01 0.01 0.30 0.00 0.08 0.00 0.00 0.03 0.16 0.14 0.01 0.05 0.06 0.01 0.00 0.08
0.00 0.00 0.07 0.00 0.02 0.03 0.01 0.01 0.01 0.00 0.42 0.02 0.31 0.00 0.02 0.01
0.03 0.01 0.00 0.00 0.01 0.00 0.03 0.00 0.75 0.01 0.02 0.02 0.00 0.02 0.01 0.02
0.00 0.09 0.01 0.01 0.00 0.01 0.00 0.00 0.00 0.05 0.00 0.01 0.00 0.72 0.02 0.02

ATRIX

0.01 0.02 0.03 0.05 0.13 0.21 0.26 0.42 0.47 0.48 0.49 0.66 0.72 0.73 0.83 1.00
0.01 0.03 0.07 0.14 0.19 0.34 0.42 0.47 0.50 0.55 0.65 0.68 0.74 0.77 0.96 1.00
0.00 0.01 0.01 0.02 0.02 0.05 0.06 0.21 0.21 0.22 0.23 0.23 0.24 0.29 0.30 1.00
0.00 0.02 0.21 0.23 0.42 0.45 0.51 0.55 0.57 0.63 0.67 0.77 0.78 0.81 0.82 1.00
0.00 0.01 0.01 0.01 0.02 0.04 0.06 0.07 0.08 0.09 0.11 0.87 0.94 0.96 1.00 1.00
0.03 0.04 0.05 0.05 0.07 0.08 0.09 0.15 0.19 0.19 0.20 0.22 0.24 0.99 0.99 1.00
0.00 0.19 0.22 0.23 0.24 0.24 0.24 0.27 0.35 0.35 0.39 0.40 0.62 0.64 0.69 1.00
0.12 0.15 0.33 0.35 0.48 0.51 0.60 0.60 0.66 0.68 0.72 0.75 0.76 0.76 0.79 1.00
0.02 0.03 0.59 0.60 0.60 0.61 0.62 0.63 0.68 0.69 0.83 0.86 0.89 0.89 0.99 1.00
0.00 0.00 0.00 0.00 0.01 0.01 0.01 0.03 0.03 0.03 0.03 0.03 0.98 0.99 0.99 1.00
0.42 0.71 0.73 0.73 0.74 0.75 0.78 0.78 0.79 0.82 0.84 0.86 0.91 0.91 0.99 1.00
0.01 0.01 0.92 0.92 0.94 0.94 0.94 0.94 0.95 0.95 0.95 0.96 0.96 0.96 0.98 1.00
0.01 0.03 0.33 0.34 0.42 0.43 0.43 0.47 0.63 0.77 0.78 0.84 0.90 0.91 0.91 1.00
0.00 0.00 0.08 0.08 0.11 0.14 0.16 0.18 0.19 0.20 0.62 0.64 0.96 0.96 0.99 1.00
0.03 0.04 0.05 0.05 0.06 0.07 0.11 0.11 0.87 0.88 0.90 0.93 0.93 0.96 0.98 1.00
0.00 0.09 0.11 0.13 0.13 0.14 0.14 0.14 0.15 0.20 0.21 0.22 0.23 0.95 0.98 1.00

TRANSITION MATRIX FOR SCORE = 85

TIRIX

0.00	0.00	0.00	0.01	0.02	0.06	0.03	0.14	0.02	0.03	0.03	0.09	0.02	0.00	0.25	0.26
0.01	0.05	0.06	0.11	0.00	0.16	0.04	0.06	0.02	0.02	0.06	0.03	0.09	0.00	0.23	0.03
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.11	0.00	0.00	0.01	0.00	0.02	0.04	0.01	0.77
0.02	0.00	0.17	0.01	0.17	0.04	0.07	0.05	0.01	0.12	0.03	0.03	0.01	0.00	0.02	0.19
0.01	0.00	0.00	0.00	0.00	0.02	0.03	0.04	0.01	0.00	0.02	0.63	0.12	0.03	0.04	0.00
0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.01	0.00	0.00	0.01	0.00	0.87	0.00	0.00
0.00	0.14	0.03	0.01	0.00	0.00	0.01	0.01	0.09	0.00	0.00	0.03	0.19	0.02	0.04	0.37
0.13	0.09	0.15	0.03	0.15	0.00	0.05	0.02	0.00	0.03	0.03	0.03	0.00	0.01	0.02	0.21
0.00	0.00	0.81	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.06	0.01	0.02	0.00	0.02	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.00	0.00	0.00	0.00	0.81	0.01	0.02	0.03
0.35	0.26	0.04	0.00	0.01	0.02	0.04	0.00	0.00	0.02	0.01	0.03	0.03	0.01	0.10	0.01
0.00	0.01	0.86	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.02
0.01	0.02	0.33	0.01	0.20	0.00	0.02	0.02	0.09	0.11	0.01	0.06	0.03	0.00	0.00	0.05
0.00	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.54	0.00	0.34	0.00	0.01	0.01
0.05	0.00	0.00	0.00	0.02	0.00	0.07	0.01	0.66	0.03	0.02	0.06	0.00	0.00	0.00	0.01
0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00

ATRIX

0.00	0.01	0.01	0.03	0.05	0.12	0.16	0.30	0.32	0.35	0.38	0.47	0.49	0.49	0.74	1.00
0.01	0.06	0.13	0.23	0.24	0.40	0.45	0.51	0.53	0.56	0.62	0.65	0.74	0.74	0.97	1.00
0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.13	0.13	0.13	0.14	0.15	0.17	0.22	0.23	1.00
0.02	0.02	0.19	0.21	0.38	0.43	0.51	0.56	0.58	0.70	0.73	0.77	0.78	0.79	0.81	1.00
0.01	0.01	0.02	0.02	0.02	0.04	0.08	0.13	0.14	0.15	0.17	0.80	0.92	0.95	1.00	1.00
0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.08	0.10	0.10	0.10	0.12	0.13	1.00	1.00	1.00
0.00	0.14	0.17	0.19	0.20	0.20	0.22	0.23	0.32	0.33	0.34	0.37	0.56	0.58	0.63	1.00
0.13	0.22	0.37	0.40	0.55	0.56	0.61	0.64	0.64	0.67	0.71	0.74	0.75	0.76	0.79	1.00
0.00	0.01	0.82	0.82	0.82	0.83	0.84	0.85	0.86	0.86	0.92	0.94	0.97	0.97	0.99	1.00
0.00	0.00	0.00	0.01	0.01	0.03	0.03	0.09	0.09	0.11	0.11	0.12	0.93	0.94	0.97	1.00
0.35	0.61	0.66	0.67	0.68	0.71	0.76	0.76	0.77	0.79	0.80	0.83	0.87	0.89	0.99	1.00
0.00	0.01	0.88	0.88	0.89	0.89	0.90	0.91	0.91	0.91	0.91	0.94	0.94	0.95	0.97	1.00
0.01	0.03	0.36	0.37	0.57	0.58	0.60	0.63	0.72	0.83	0.84	0.91	0.95	0.95	0.95	1.00
0.00	0.00	0.02	0.02	0.02	0.04	0.06	0.07	0.07	0.07	0.62	0.63	0.97	0.97	0.99	1.00
0.05	0.05	0.06	0.06	0.08	0.09	0.17	0.19	0.84	0.88	0.90	0.96	0.97	0.98	0.99	1.00
0.00	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.99	0.99	1.00

TRANSITION MATRIX FOR SCORE = 90

TIRIX

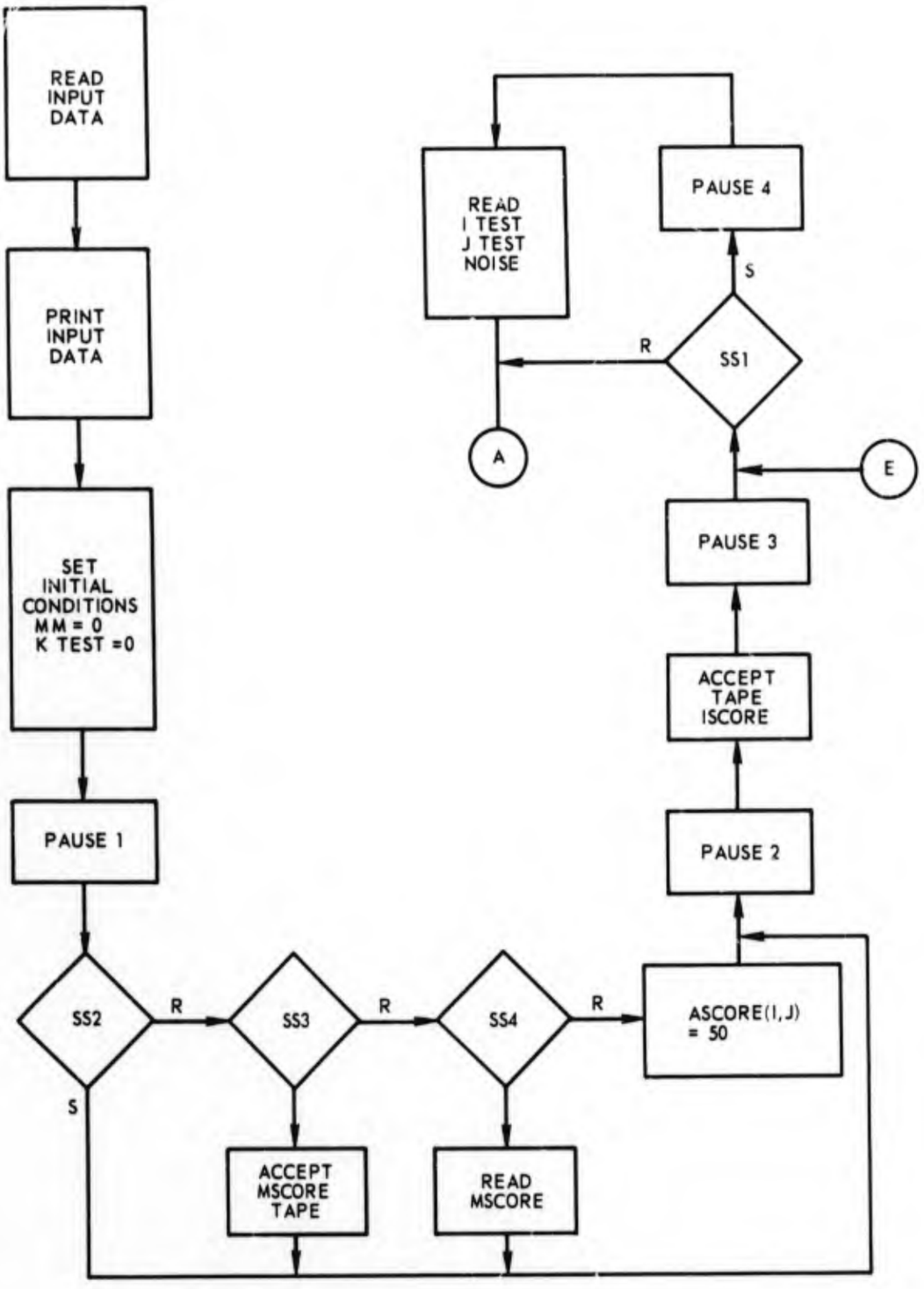
0.07	0.03	0.00	0.06	0.02	0.08	0.08	0.13	0.04	0.01	0.02	0.12	0.11	0.00	0.09	0.09
0.00	0.04	0.03	0.07	0.02	0.08	0.17	0.05	0.03	0.02	0.03	0.03	0.07	0.01	0.26	0.01
0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.34
0.00	0.03	0.11	0.06	0.25	0.05	0.01	0.01	0.00	0.12	0.04	0.05	0.01	0.03	0.00	0.17
0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.01	0.06	0.49	0.25	0.01	0.03	0.00
0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.04	0.01	0.00	0.00	0.02	0.00	0.87	0.00	0.00
0.00	0.10	0.02	0.00	0.00	0.00	0.01	0.02	0.07	0.00	0.00	0.00	0.37	0.01	0.04	0.29
0.02	0.01	0.05	0.00	0.02	0.00	0.01	0.01	0.01	0.72	0.02	0.01	0.00	0.01	0.01	0.03
0.05	0.01	0.56	0.00	0.00	0.00	0.01	0.00	0.07	0.00	0.08	0.06	0.07	0.00	0.03	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.00
0.28	0.25	0.02	0.03	0.04	0.00	0.02	0.00	0.02	0.02	0.04	0.00	0.04	0.09	0.04	0.05
0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.87	0.00	0.02	0.01
0.03	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.38	0.03	0.00	0.21	0.00	0.02	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

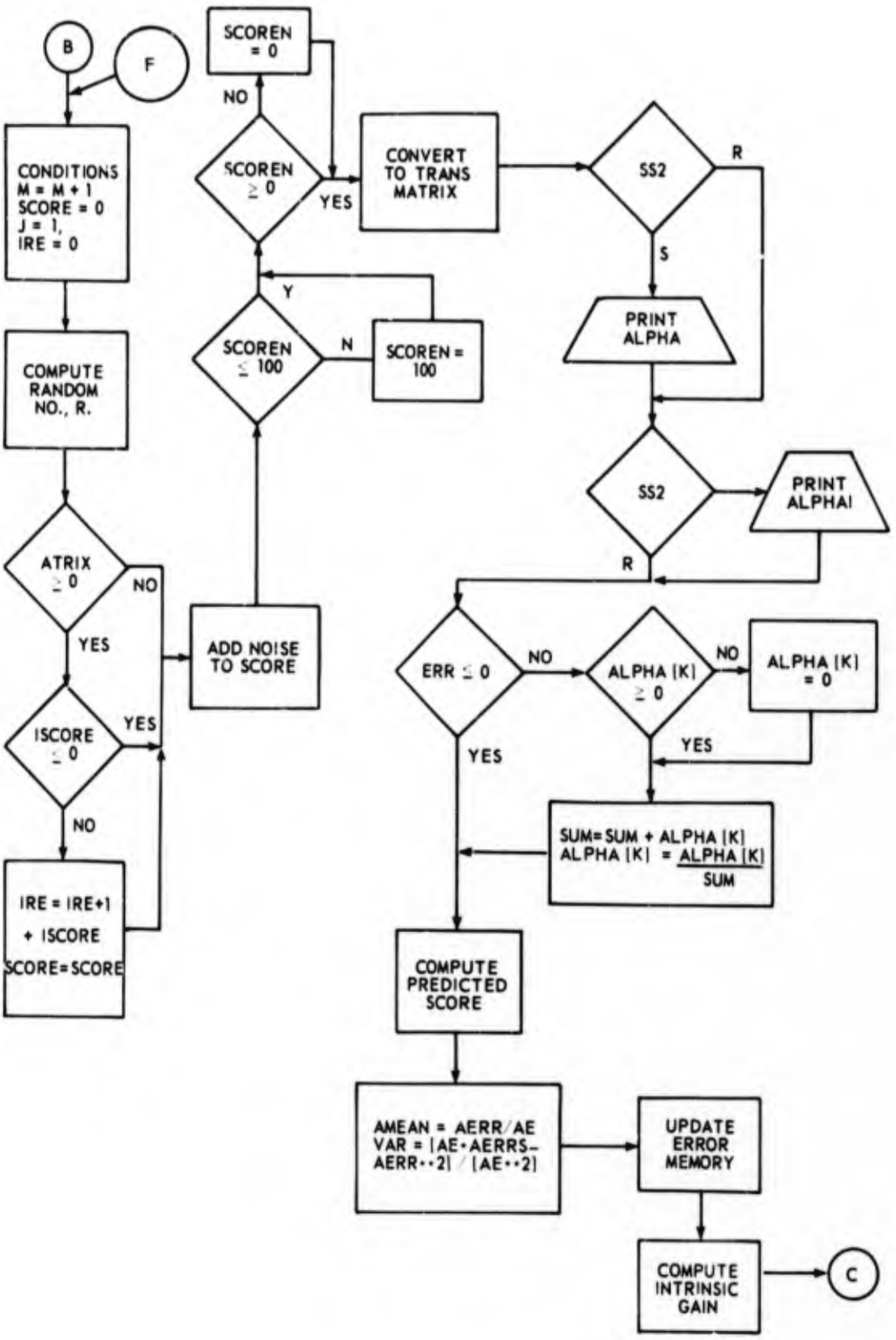
ATRIX

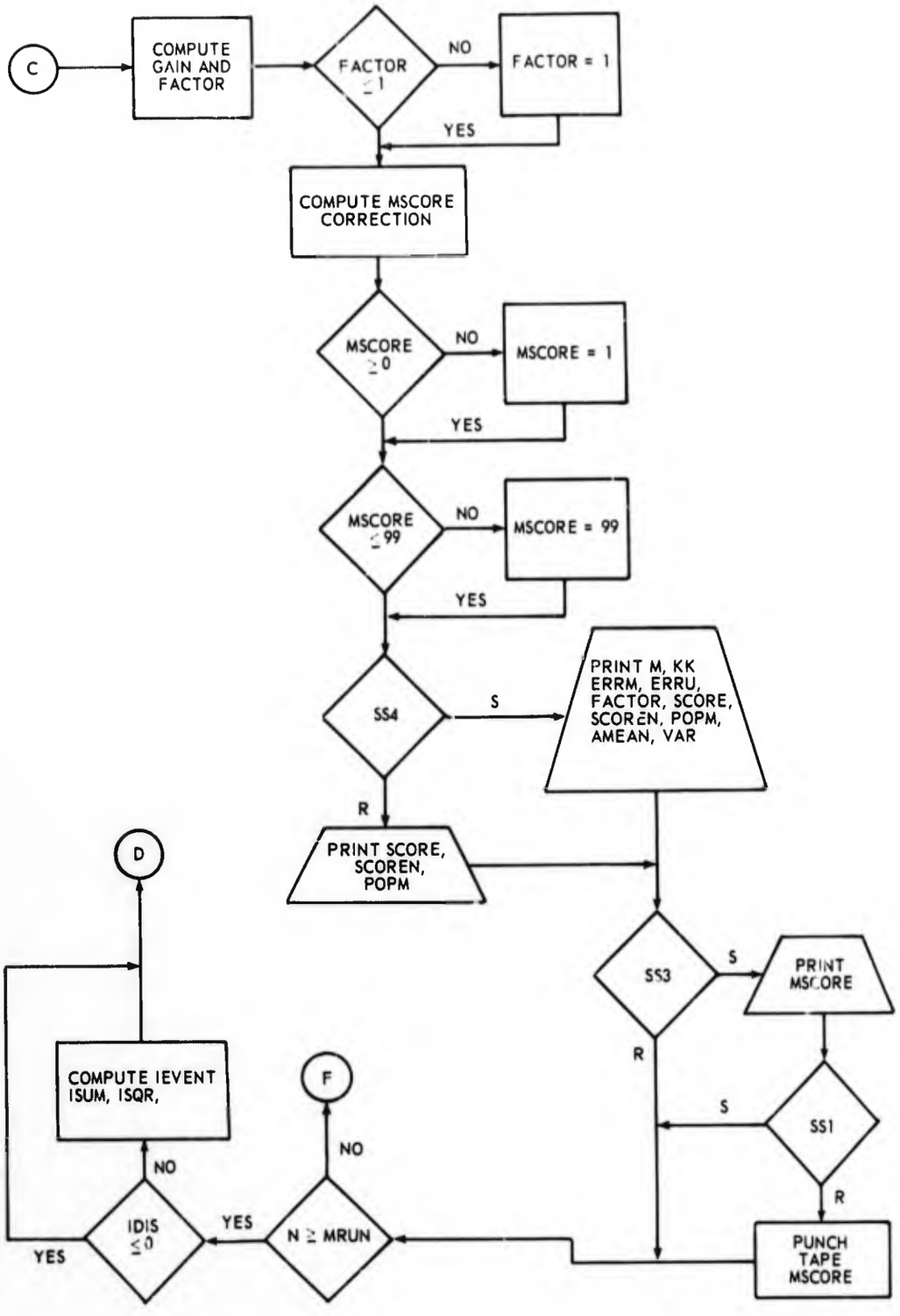
0.07	0.11	0.11	0.18	0.20	0.29	0.37	0.50	0.54	0.55	0.57	0.70	0.80	0.81	0.90	1.00
0.00	0.05	0.08	0.16	0.18	0.27	0.44	0.50	0.53	0.56	0.60	0.63	0.71	0.72	0.98	1.00
0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.62	0.63	0.63	0.63	0.63	0.64	0.65	0.66	1.00
0.00	0.04	0.15	0.21	0.46	0.52	0.53	0.54	0.55	0.67	0.71	0.77	0.78	0.82	0.83	1.00
0.03	0.03	0.04	0.04	0.04	0.05	0.07	0.09	0.13	0.14	0.21	0.69	0.94	0.96	0.99	1.00
0.01	0.01	0.01	0.01	0.03	0.04	0.04	0.08	0.10	0.10	0.10	0.13	0.13	1.00	1.00	1.00
0.00	0.10	0.12	0.13	0.13	0.14	0.16	0.19	0.26	0.27	0.27	0.28	0.65	0.67	0.71	1.00
0.02	0.04	0.09	0.10	0.12	0.12	0.14	0.15	0.17	0.89	0.91	0.93	0.94	0.95	0.96	1.00
0.05	0.06	0.63	0.63	0.64	0.64	0.65	0.66	0.73	0.74	0.82	0.89	0.96	0.97	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.98	0.99	1.00	1.00
0.28	0.53	0.55	0.58	0.63	0.63	0.66	0.67	0.69	0.71	0.75	0.76	0.80	0.90	0.95	1.00
0.00	0.00	0.93	0.93	0.94	0.94	0.95	0.95	0.95	0.95	0.96	0.97	0.97	0.98	1.00	1.00
0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.08	0.09	0.96	0.97	0.99	1.00
0.03	0.03	0.03	0.03	0.04	0.05	0.32	0.32	0.70	0.74	0.75	0.95	0.96	0.98	0.98	1.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00

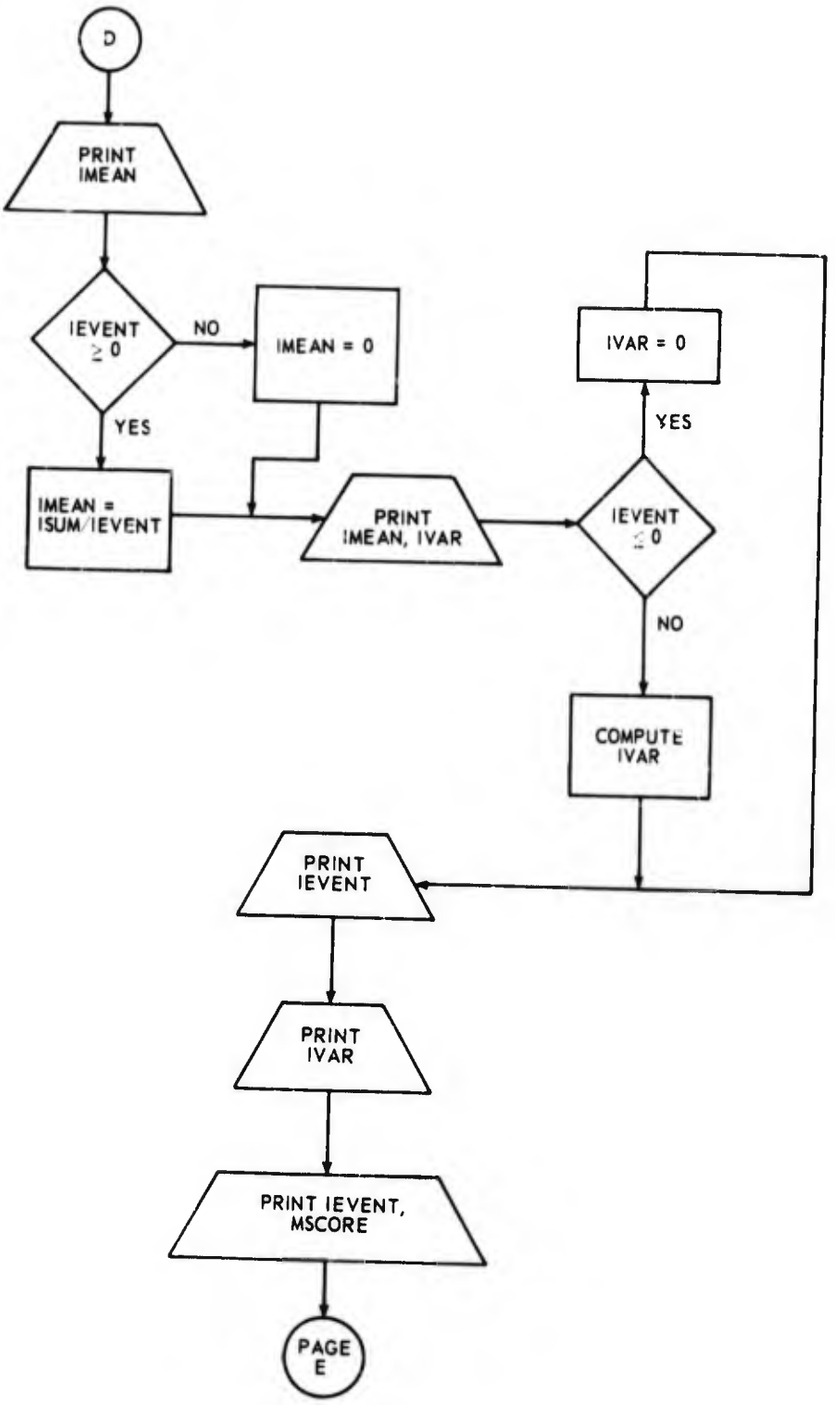
APPENDIX 16

PROGRAM FOR INVESTIGATING THE RELEVANCE OF TRANSTATES TO SCORE PREDICTION


READ INPUT DATA
PRINT INPUT DATA
SET INITIAL CONDITIONS MM = 0 K TEST =0
PAUSE 1
SS2
R
SS3
R
SS4
R
ASCORE(I, J) = 50
S
ACCEPT MSCORE TAPE
READ MSCORE
PAUSE 2
ACCEPT TAPE ISCORE
PAUSE 3
E
SS1
R
S
PAUSE 4
READ I TEST J TEST NOISE
A


B
F
CONDITIONS
M = M + 1
SCORE = 0
J = 1,
IRE = 0
COMPUTE
RANDOM
NO., R.
ATRIX
≥ 0
NO
YES
ISCORE
≤ 0
YES
NO
IRE = IRE+1
+ ISCORE
SCORE=SCORE
ADD NOISE
TO SCORE
SCOREN
= 0
NO
SCOREN
≥ 0
YES
Y
SCOREN
≤ 100
N
SCOREN =
100
CONVERT
TO TRANS
MATRIX
SS2
R
S
PRINT
ALPHA
SS2
PRINT
ALPHA!
R
ERR ≤ 0
NO
ALPHA [K]
≥ 0
NO
ALPHA [K]
= 0
YES
YES
SUM=SUM + ALPHA [K]
ALPHA [K] = ALPHA [K] / SUM
COMPUTE
PREDICTED
SCORE
AMEAN = AERR/AE
VAR = [AE*AERRS-
AERR**2] / [AE**2]
UPDATE
ERROR
MEMORY
COMPUTE
INTRINSIC
GAIN
C


C
COMPUTE GAIN AND FACTOR
FACTOR ≤ 1
NO
FACTOR = 1
YES
COMPUTE MSCORE CORRECTION
MSCORE ≥ 0
NO
MSCORE = 1
YES
MSCORE ≤ 99
NO
MSCORE = 99
YES
SS4
S
PRINT M, KK ERRM, ERRU, FACTOR, SCORE, SCOREN, POPM, AMEAN, VAR
R
PRINT SCORE, SCOREN, POPM
D
SS3
S
PRINT MSCORE
R
S
SS1
R
PUNCH TAPE MSCORE
F
NO
N ≥ MRUN
YES
IDIS ≤ 0
NO
YES
COMPUTE IEVENT ISUM, ISQR,


D
PRINT IMEAN
IEVENT ≥ 0
NO
IMEAN = 0
YES
IMEAN = ISUM/IEVENT
PRINT IMEAN, IVAR
IEVENT ≤ 0
YES
IVAR = 0
NO
COMPUTE IVAR
PRINT IEVENT
PRINT IVAR
PRINT IEVENT, MSCORE
PAGE E

```
$JOB.
$ASSIGN S=MTO, SI=CR,L6=LP, B9=MT1.
$FORTRAN SI,L6,  B9.
*     1  C      EMC APM 68-11-6
*     2  C      STATE TRANSITION COMPUTATION
*     3  C      PART II  DATA GENERATION
*     4  C      TRAINING WITH NOISE ON THE INPUT
*     5  C      READ INPUT DATA
*     6         DIMENSION ATRIX(16,16),ISCORE(16,16),
*     7        1MTRIX2(16,16),MSCORE(16,16)  ,ICOUNT(16,16)  ,
*     8        2ALPHA(16), AIMIT(16), ALPHA1(16),ICIS(16,16), ERRORM(10),
*     9        3 ERRORV(10)                                  ,ISUM(16,16) ,ISQR(16,16),
*    10        4  IEVENT(16,16) ,IVAR (16) ,IMEAN(16)
*    11         READ 100,IR,MRUN
*    12     100 FORMAT (2I7)
*    13         PRINT 115,IR,MRUN
*    14     115 FORMAT (1H1,10X,2I  17,2X)
*    15  C      INITIAL CONDITIONS
*    16         MM =0
*    17         KTEST =0
*    18         ITEST =1
*    19         MTEST =0
*    20         III = 5**9
*    21         SMALL = 1./(2.**23-1)
*    22         DO 356 I=1,16
*    23         DO 357 J= 1,16
*    24         ISUM (I,J) =0
*    25         ISQR (I,J)=0
*    26         IEVENT(I,J) =0
*    27     357 CONTINUE
*    28     356 CONTINUE
*    29         DO 602 K= 1,10
*    30         ERRORM(K) =2.
*    31         ERRORV(K) =2.
*    32     602 CONTINUE
*    33  C      INPUT CONTROL
*    34         PAUSE 1
*    35  C
*    36  C
*    37         IF( SENSE SWITCH 2) 305,257
*    38     257 IF(SENSE SWITCH 3)255,256
*    39     255 ACCEPT TAPE 303,((MSCORE(I,J),J=1,16),I=1,16)
*    40         GO TO 305
*    41  C
*    42  C
*    43     256 IF (SENSE SWITCH 4) 304,306
*    44     304 READ 303,((MSCORE(I,J),J=1,16),I=1,16)
*    45     303 FORMAT(16I4  )
*    46         GO TO 305
*    47     306 DO 2 I=1,16
*    48         DO 3 J=1,16
*    49         MSCORE(I,J) = 50
*    50       3 CONTINUE
```

```
      2 CONTINUE
        AERR =0.
        AE =0.
        AERRS =0.
  305 PAUSE 2
        ACCEPT TAPE 102, [[ISCORE[I,J] , J=1,16], I=1,16]
  102 FORMAT (16(I3,2X))
        PAUSE 3
  355 CONTINUE
        M = 0
        IF(SENSE S ITCH 1) 210,211
  210 PAUSE 4
        READ 400, ITEST, JTEST,NN, BNOISE,DEV
  400 FORMAT( 3I10,2F20.10)
        PRINT 401,( ITEST, JTEST , NN, BNOISE, DEV )
  401 FORMAT (10X,3(I10,2X),2(F10.2,2X))
  211 MTEST =MTEST +1
        IF (ITEST-2) 212,213,214
  212 IF( MTEST-17)215,215,216
  216 MTEST=1
        REWIND 5
  215 READ INPUT TAPE 5, 402, KTEST
  402 FORMAT(I3)
        DO 217,I=1,16
        READ INPUT TAPE 5,403,(ATRIX[I,J),J=1,16)
  217 CONTINUE
  403 FORMAT (16F5.3)
        GO TO 219
  213 IF(KTEST-JTEST) 218,219,218
  218 REWIND 5
  221 READ INPUT TAPE 5,402, KTEST
        DO 220,I=1,16
        READ INPUT TAPE 5, 403,( ATRIX[I,J],J=1,16)
  220 CONTINUE
        IF (KTEST-JTEST) 221,219,219
C       RANDOM INPUT TEST
  214 IR=IR+111
        R=[[IR*0.5]*SMALL*0.5)*100.
        REWIND 5
  223 READ INPUT TAPE 5,402, KTEST
        DO 222,I=1,16
        READ INPUT TAPE 5,403,(ATRIX[I,J),J=2,16)
  222 CONTINUE
        IF( KTEST-R) 223,219,219
  219 CONTINUE
      N1 M=M+1
C       COMPUTE SEQUENCE OF STATES
        SCORE = 0.
        J=1
        IRE =0
        DO 12 I=1,16
        DO 22 J=1,16
        ICOUNT[I,J)=0
   22 CONTINUE
```

```
*  105      12 CONTINUE
*  106         DO 10, K=1,600
*  107         I=J
*  108         IR = IR*111
*  109         R= (IR*0.5)*SMALL+0.5
*  110         DO 20 J=1,16
*  111         IF(ATRIX(I,J)-R) 20,21,21
*  112      21 ICOUNT(I,J) = ICOUNT (I,J) +1
*  113         IF( ISCORE(I,J)) 358,358,359
*  114     359 IRE =IRE+1
*  115         SCORE =SCORE+ISCORE(I,J)
*  116     358 CONTINUE
*  117         GO TO 10
*  118      20 CONTINUE
*  119      10 CONTINUE
*  120         SCORE = SCORE /IRE
*  121  C      ADD NOISE TO SCORE
*  122         RA = 0.0
*  123         DO 410 , K=1,12
*  124         IR=IR*111
*  125         R=IR*SMALL
*  126         RA = RA + R
*  127     410 CONTINUE
*  128         SCOREN = SCORE + RA*BNOISE
*  129         IF( SCOREN - 100.) 224,224,225
*  130     225 SCOREN=100.
*  131     224 IF( SCOREN) 226,227,227
*  132     226 SCOREN =0.
*  133     227 CONTINUE
*  134  C      CONVERT TO TRANSITION MATRIX
*  135         DO 40 I= 1,16
*  136         SUM = 0.
*  137         DO 50 J= 1,16
*  138         SUM = SUM +ICOUNT(I,J)
*  139      50 CONTINUE
*  140         DO 60 J = 1,16
*  141         MTRIX2(I,J) =ICOUNT(I,J) *1000/SUM
*  142      60 CONTINUE
*  143      40 CONTINUE
*  144  C      COMPUTE ALPHA
*  145         IF(SENSE SWITCH 2) 228,235
*  146     228 PRINT 500
*  147     500 FORMAT(////,10X,6ALPHAS)
*  148     235 CONTINUE
*  149         DO 4000 I=1,16
*  150         ALPHA(I) =1.0/16
*  151    4000 CONTINUE
*  152         MMM=0
*  153    5000 CONTINUE
*  154         DO 231 K=1,16
*  155         AIMIT(K) =0.0
*  156         ALPHA1(K)=0.0
*  157         SUM=0.0
*  158     231 CONTINUE
```

```
*  159          MMM=MM+1
*  160          ERR=0.0
*  161          DO 232 J=1,16
*  162          DO 233 K=1,16
*  163          ALPHA1(J) = ALPHA(K)* MTRIX2(K,J)/ 1000. + ALPHA1(J)
*  164      233 CONTINUE
*  165          SUM = ALPHA1(J) + SUM
*  166      232 CONTINUE
*  167          DO 234 K=1,16
*  168          ALPHA1(K)= ALPHA1(K)/ SUM
*  169          ERR=(ALPHA1(K)-ALPHA(K))**2+ERR
*  170      234 CONTINUE
*  171          IF(SENSE SWITCH 2) 690,236
*  172      690 PRINT 237,( ALPHA1(K),K=1,16 )
*  173      237 FORMAT( 10X,16(F4.2,2X)    )
*  174      236 IF(ERR-.0001) 238,238,601
*  175      601 IF( MMM-25) 6003,6003,6001
*  176     6001 PRINT 6002
*  177     6002 FORMAT (10X,,,5 ALPHA S)
*  178          PRINT 237,( ALPHA1(K),  K=1,16)
*  179          GO TO 238
*  180     6003 SUM =0.0
*  181          DO 340 K=1,16
*  182          ALPHA(K)= ALPHA1(K)
*  183          IF(ALPHA(K)) 341,342,342
*  184      341 ALPHA(K)=0.0
*  185      342 SUM =SUM+ ALPHA(K)
*  186      340 CONTINUE
*  187          DO 603 K=1,16
*  188          ALPHA (K)=ALPHA(K)/ SUM
*  189      603 CONTINUE
*  190          GO TO 5000
*  191      238 DO 239 K=1,16
*  192          AIMIT(K)=AIMIT(K)* ALPHA(K)
*  193      239 CONTINUE
*  194          DO 240 I=1,16
*  195          DO 241J=1,16
*  196          IDIS(I,J)= ALPHA(I) * MTRIX2(I,J)
*  197      241 CONTINUE
*  198      240 CONTINUE
*  199  C       COMPUTE PREDICTED SCORE
*  200          PSPM =0.0
*  201          DO 242 I=1,16
*  202          DO 243 J=1,16
*  203          PSPM = IDIS(I,J) *MSCORE(I,J) + PSPM
*  204      243 CONTINUE
*  205      242 CONTINUE
*  206          PSPM = PSPM/ 1000.
*  207          AERR =AERR + SCORE -PSPM
*  208          AE = AE +1.
*  209          AERRS = AERRS +( SCORE -PSPM)**2
*  210          AMEAN = AERR/ AE
*  211          VAR =( AE*AERRS-AERR**2)/(AE**2)
*  212  C       UPDATE ERROR MEMORY
```

```
      DO 604 K=1,9
      ERRORM(K) =ERRORM (K+1)
      ERRORV(K) =ERRORV(K+1)
  604 CONTINUE
      ERRORM(10) = SCREEN -POPM
      ERRORV(10) =(SCREEN -POPM)**2
      ERRM =0.0
      ERRV =0.0
      DO 605 K=1,10
      ERRM = ERRM + ERRORM(K)
      ERRV =ERRV+ ERRORV(K)
  605 CONTINUE
      ERRV =( 10.*ERRV- ERRM**2) / 100.
      ERRM = ERRM/ 10.
C     COMPUTE INTRINSIC GAIN
      GAIN =0.0
      DO 247 I=1,16
      DO 248 J=1,16
      GAIN = ( IDIS(I,J)/ 1000.)**2 + GAIN
  248 CONTINUE
  247 CONTINUE
      FACTOR = DEV /( ERRV +DEV) +0.5*ABS(ERRM)
      IF( FACTOR - 1.) 3000,3000,3001
 3001 FACTOR =1.
 3000 CONTINUE
      DO 250 I=1,16
      DO 251 J=1,16
      MSCORE(I,J) =MSCORE(I,J)+(IDIS(I,J)*FACTOR*(SCREEN-POPM))/
     1 (GAIN*1000.)
      IF( MSCORE(I,J)) 2000,2001,2001
 2000 MSCORE(I,J) =0
 2001 IF (MSCORE(I,J)-99 ) 2002,2002,2003
 2003 MSCORE(I,J) =99
 2002 CONTINUE
  251 CONTINUE
  250 CONTINUE
C     PRINT SCORES
      IF(SENSE SWITCH 4) 252,253
  252 PRINT 254, ,KK,ERRM    ,ERRV    ,FACTOR,SCORE,SCREEN,POPM   ,
     1 AMEAN, VAR
  254 FORMAT(     /,1CX,2(I3,2X), 8(E11.4,2X) )
      GO TO 600
  253 PRINT 244, SCORE,SCREEN,POPM
  244 FORMAT(1H1,1CX,' TRUE SCORE =',F5.0,5X,' TRUE SCORE + NOISE =',
     1 F5.0,5X,' PREDICTED SCORE =', F5.0)
  600 CONTINUE
  200 IF(SENSE SWITCH 3) 201,202
C     PRINT MSCORE
  201 CONTINUE
      PRINT 1303
 1303 FORMAT(1CX,'MSCORE')
      DO 161=1,16
      PRINT 113,(MSCORE(I,J),J=1,16)
  113 FORMAT( 10X,16(I4  ))
```

```
      16 CONTINUE
C
C
      IF(SENSE SWITCH 1) 302,202
  302 PUNCH TAPE 303,((MSCORE(I,J),J=1,16),I=1,16)
  202 IF(MEMRUN) 41,11,11
   11 DO 360 I=1,16
      DO 343 J=1,16
      IF(IDIS(I,J)) 343,343,344
  344 ISUM(I,J)= ISUM(I,J)+ MSCORE(I,J)
      ISQR(I,J)=  ISQR(I,J)+ (MSCORE(I,J))**2
      IEVENT (I,J) =IEVENT (I,J) +1
  343 CONTINUE
  360 CONTINUE
C   COMPUTE AND PRINT VARIANCE
      PRINT 348
  348 FORMAT (1H1,10X,$MEAN S)
      DO 345 I=1,16
      DO 346 J=1,16
      IF(IEVENT(I,J)) 404,404,405
  404 IMEAN(J) =0
      GO TO 346
  405 IMEAN(J) = ISUM(I,J) / IEVENT(I,J)
  346 CONTINUE
      PRINT 347,( IMEAN(J),J=1,16)
  347 FORMAT( 10X,16I4)
  345 CONTINUE
      PRINT 349
  349 FORMAT(//,10X,$IVARS)
      DO 350 I=1,16
      DO 351 J=1,16
      IF(IEVENT(I,J))406,406,407
  406 IVAR(J) =0
      GO TO 351
  407 IVAR(J) =(IEVENT(I,J)*ISQR(I,J)- ISUM(I,J)**2)/(IEVENT(I,J)** 2)
  351 CONTINUE
      PRINT 352,(IVAR(J),J=1,16)
  352 FORMAT( /, 10X,16I5)
  350 CONTINUE
      PRINT 353
  353 FORMAT( 1H1,10X,$IEVENTS,/)
      DO 354 I=1,16
      PRINT 347,( IEVENT (I,J),J=1,16)
  354 CONTINUE
      PRINT 1303
      DO 408 I=1,16
      PRINT 113,(MSCORE(I,J),J=I,16)
  408 CONTINUE
      GO TO 355
      END

PROGRAM ALLOCATION
```

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APPENDIX 17

RESULTS OF AN INVESTIGATION OF THE RELEVANCE OF TRANSTATE TO SCORE PREDICTION

ISCORE	ATRIX	NOMINAL SCORE	DATA RUN	NOISE FACTOR
-0	-0	90	2	5
-0	-0	10	3	5
-0	-0	90	2	1
-0	-0	10	3	1
-1	-1	90	2	1
-1	-1	10	3	1
-1	-2	90	2	1
-1	-2	10	3	1
-1	-0	90	2	1
-1	-0	10	3	1
-2	-0	90	2	1
-2	-0	10	3	1

IEVENT

14	2	9	10	13	13	12	13	13	9	14	13	13	11	11	13
10	5	10	14	10	11	14	13	6	15	9	12	10	13	12	12
13	11	7	9	12	9	10	8	13	9	8	6	8	12	13	10
13	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	3	8	10	11	14	11	9	8	10	12	11	12	12	9
11	11	6	12	9	9	11	11	10	7	10	6	12	11	0	13
9	14	10	11	12	6	11	11	13	8	11	12	11	6	10	13
11	12	11	12	12	10	9	9	10	4	12	8	8	10	11	12
7	13	12	10	12	14	12	9	13	11	13	8	4	10	9	10
3	7	8	8	12	9	10	9	7	7	6	2	9	3	9	11
12	11	11	2	13	11	10	9	12	7	11	4	10	2	13	12
9	8	11	3	8	5	3	2	5	5	12	10	8	9	5	9
3	7	9	10	8	12	11	11	12	8	13	11	11	14	5	12
11	7	8	13	12	11	12	8	8	1	11	13	12	8	6	8
9	12	11	1	10	3	8	10	10	10	7	9	0	8	10	11
4	5	8	8	13	11	11	11	11	7	11	6	11	8	8	11

MSCORE

77	39	35	33	53	77	33	94	71	31	80	93	36	89	94	92
70	20	16	87	6	97	92	20	43	35	84	1	67	22	96	27
74	14	26	0	3	69	10	34	27	34	51	30	30	81	8	97
92	41	38	20	38	14	72	73	48	70	27	17	41	39	74	59
55	17	35	0	0	93	45	85	20	38	5	74	92	4	91	1
67	41	50	81	44	53	88	77	76	5	28	19	82	94	47	85
10	80	0	22	8	25	77	62	67	21	35	28	44	22	85	81
36	80	95	80	98	33	29	41	30	32	16	34	43	43	12	93
17	96	95	52	89	85	67	13	12	10	83	40	47	10	48	49
60	39	0	21	74	39	14	84	68	33	28	31	96	33	85	81
99	97	36	48	1	8	22	48	67	7	79	34	95	42	89	48
34	37	95	50	70	45	55	47	30	41	17	84	64	78	43	87
51	50	77	18	55	49	15	93	99	98	88	99	74	65	41	93
55	21	62	66	18	71	90	50	12	41	99	77	80	39	12	20
63	13	7	45	68	40	12	44	97	92	70	26	55	84	38	75
48	18	87	93	63	98	71	48	46	88	50	53	72	92	52	95

IMEAN

71	41	24	38	49	59	40	67	54	29	47	71	33	70	73	67
47	29	26	65	12	81	59	27	46	33	62	21	60	20	53	34
71	11	26	14	10	53	18	39	14	31	40	35	33	65	20	67
59	43	41	26	43	29	58	61	52	53	26	25	41	30	53	43
44	30	34	9	7	64	33	58	28	31	16	58	77	22	73	15
52	38	41	59	30	53	56	64	63	7	32	42	62	72	0	60
19	62	12	26	12	30	43	38	62	24	35	22	49	32	58	68
41	72	82	64	72	26	34	35	31	38	25	39	31	55	28	73
26	59	64	40	41	46	47	4	27	18	55	43	42	4	35	34
43	41	17	25	50	42	14	68	30	25	38	41	90	42	70	60
66	66	37	48	19	20	33	28	46	23	64	38	75	44	67	39
23	35	70	49	52	36	53	44	43	41	25	63	59	71	47	75
45	52	57	27	51	46	29	70	67	78	59	68	65	57	45	75
39	27	65	35	21	55	66	55	26	44	72	65	76	22	25	29
69	26	16	46	49	42	26	37	72	64	63	34	0	53	34	63
49	36	61	62	47	73	53	40	35	71	36	54	69	70	48	70

IVAR

344	4	250	98	226	412	19	829	352	31	353	769	90	415	333	596
502	80	77	346	69	507	749	70	11	53	448	287	106	98	1060	35
390	154	37	213	154	360	224	63	201	112	104	31	34	468	133	582
1046	9	32	52	8	97	139	222	84	360	185	100	158	61	429	107
118	108	2	126	115	658	380	343	89	92	208	433	418	256	722	164
426	51	48	390	166	71	686	171	261	31	31	75	335	615	0	585
127	911	194	69	149	24	519	228	225	86	132	110	41	42	1125	314
27	359	385	190	641	380	63	98	11	14	125	19	76	171	216	513
89	1002	848	592	807	1295	403	45	145	79	825	2	15	21	30	104
26	79	152	32	413	36	98	258	800	157	74	49	117	46	541	489
600	715	13	0	306	207	65	371	383	238	285	7	573	6	439	22
133	19	716	0	336	46	32	2	40	22	159	415	215	456	3	481
17	35	415	137	11	93	162	712	691	255	681	582	462	433	13	406
186	59	238	667	89	139	603	17	95	0	502	664	418	369	110	89
283	113	176	0	455	14	142	54	612	979	138	38	0	428	79	451
5	216	321	1174	174	592	282	133	152	498	162	35	416	460	58	644

IEVENT

14	2	10	10	13	13	12	13	13	9	14	13	13	11	11	13
11	5	10	14	11	11	14	13	6	15	9	13	10	14	12	12
13	11	7	10	12	10	10	8	14	10	9	6	8	12	13	10
14	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	4	9	10	12	14	12	10	8	10	12	11	12	12	10
11	11	6	12	9	9	11	11	10	8	10	6	13	11	0	13
10	14	10	12	12	6	12	12	13	8	11	13	11	6	11	13
11	12	11	12	12	11	10	9	10	4	12	8	8	11	11	12
6	13	13	11	13	15	12	10	14	11	14	8	5	11	10	11
4	7	9	8	12	9	11	9	8	8	7	2	9	3	9	11
12	11	11	2	13	12	10	10	13	8	11	4	10	2	13	12
9	9	11	3	8	5	3	2	5	5	13	10	8	9	5	9
3	7	9	10	8	12	11	11	13	8	13	11	11	14	6	12
12	7	9	14	13	11	12	8	9	1	11	13	12	9	6	9
9	13	12	1	10	3	8	11	10	10	7	10	0	8	10	11
4	5	8	8	14	11	12	11	11	7	11	6	11	8	8	11

MSCORE

77	39	0	33	53	77	33	94	71	31	80	93	36	89	94	92
64	18	14	86	1	97	90	20	43	32	83	0	67	14	96	22
74	9	23	0	0	66	8	33	0	32	48	29	30	81	7	.97
17	41	38	20	38	14	72	73	48	70	26	17	41	38	74	58
55	13	32	0	0	90	43	83	19	38	4	72	92	0	91	0
67	38	50	81	44	52	88	76	76	0	25	19	81	94	47	84
4	80	0	18	4	25	68	56	62	13	31	24	44	19	83	81
36	76	95	76	95	0	28	40	30	32	16	32	40	36	11	93
11	95	93	34	77	69	62	0	6	0	81	34	44	0	41	39
56	39	0	21	69	36	0	84	0	31	26	31	96	33	85	81
99	97	36	48	1	3	20	37	64	5	77	34	95	42	89	47
29	35	95	50	70	44	55	47	30	41	7	84	63	77	43	87
51	50	76	18	55	46	14	93	98	98	88	99	74	63	39	93
40	18	57	21	11	70	90	49	4	40	98	75	80	0	12	19
63	8	3	45	65	40	12	40	97	92	70	25	55	84	36	74
48	17	87	92	52	94	66	47	44	88	44	52	71	92	51	95

IMEAN

71	41	21	38	49	59	40	67	54	29	47	71	33	70	73	67
48	29	26	65	11	81	59	27	46	33	62	19	60	20	53	34
71	11	26	13	10	54	18	39	13	31	41	35	33	65	20	67
56	43	41	26	43	29	58	61	52	53	26	25	41	30	53	43
44	30	34	8	7	66	33	60	27	31	16	58	77	22	73	13
52	38	41	59	30	53	56	64	63	6	32	42	63	72	0	60
17	62	12	25	12	30	45	40	62	24	35	22	49	32	60	68
41	72	82	64	72	24	33	35	31	38	25	39	31	53	28	73
24	59	66	40	43	48	47	4	26	18	57	43	43	4	36	34
46	41	15	25	50	42	13	68	26	29	36	41	90	42	70	60
66	66	37	48	19	18	33	29	48	21	64	38	75	44	67	39
23	35	70	49	52	38	53	44	43	41	24	63	59	71	47	75
45	52	57	27	51	48	29	70	69	78	59	68	65	57	44	75
39	27	64	34	20	55	66	55	23	44	72	65	76	20	25	28
69	25	15	46	49	42	26	37	72	64	63	33	0	53	34	63
49	36	61	62	47	73	54	40	35	71	36	54	69	70	48	70

18

IVAR

344	4	278	98	226	412	19	829	352	31	353	769	90	415	333	596
480	80	77	346	73	507	749	70	11	53	448	297	106	93	1060	35
390	154	37	212	154	339	224	63	200	101	98	31	34	468	133	582
1090	9	32	52	8	97	139	222	84	360	185	100	158	61	429	107
118	108	3	121	115	653	380	818	89	92	208	433	418	256	722	169
426	51	48	390	166	71	686	171	261	33	31	75	334	615	0	585
134	911	194	68	149	24	521	233	225	86	132	102	41	42	1071	314
27	359	385	190	641	405	60	98	11	14	125	19	76	187	216	513
105	1002	842	542	837	1240	403	43	165	79	808	2	12	21	29	97
50	79	164	32	413	36	106	258	801	138	81	49	117	46	541	489
600	715	13	0	306	213	65	340	375	242	285	7	573	6	459	22
133	17	716	0	336	46	32	2	40	22	171	415	215	456	3	481
17	35	415	137	11	93	162	712	704	255	681	582	462	433	16	406
171	59	219	634	90	139	603	17	132	0	502	664	418	379	110	91
283	123	176	0	455	14	142	49	612	979	138	42	0	428	79	451
5	216	321	1174	163	592	270	133	152	498	162	35	416	460	58	644

IEVENT

14	2	9	10	13	13	12	13	13	9	14	13	13	11	11	13
10	5	10	14	10	11	14	13	6	15	9	12	10	13	12	12
13	11	7	9	12	9	10	8	13	9	8	6	8	12	13	10
13	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	3	8	10	11	14	11	9	8	10	12	11	12	12	9
11	11	6	12	9	9	11	11	10	7	10	6	12	11	0	13
9	14	10	11	12	6	11	11	13	8	11	12	11	6	10	13
11	12	11	12	12	10	9	9	10	4	12	8	8	10	11	12
7	13	12	10	12	14	12	9	13	11	13	8	4	10	9	10
3	7	8	8	12	9	10	9	7	7	6	2	9	3	9	11
12	11	11	2	13	11	10	9	12	7	11	4	10	2	13	12
9	8	11	3	8	5	3	2	5	5	12	10	8	9	5	9
3	7	9	10	8	12	11	11	12	8	13	11	11	14	5	12
11	7	8	13	12	11	12	8	8	1	11	13	12	8	6	8
9	12	11	1	10	3	8	10	10	10	7	9	0	8	10	11
4	5	8	8	13	11	11	11	11	7	11	6	11	8	8	11

MSCORE

42	38	24	33	45	38	20	80	54	30	46	92	28	94	51	83
53	22	17	60	4	95	81	22	26	39	59	10	42	34	91	23
90	19	24	10	22	49	22	43	6	25	35	27	26	74	38	83
36	30	42	17	32	28	47	43	87	69	32	24	57	25	63	66
45	22	33	0	25	84	58	77	35	61	32	57	68	24	92	23
72	40	37	85	41	47	92	70	60	0	19	25	89	95	47	79
14	87	25	21	38	25	74	93	44	24	66	38	41	30	59	93
37	91	92	91	79	24	40	34	25	37	50	34	31	48	32	94
22	97	60	62	82	87	92	8	16	22	90	30	38	0	35	28
44	41	10	38	56	53	31	87	49	48	32	36	96	38	58	60
99	96	31	46	26	87	23	60	89	25	49	36	68	42	92	37
46	39	96	48	46	39	44	42	36	30	41	56	48	49	30	93
39	40	91	26	41	57	38	96	98	87	50	95	82	87	33	76
23	22	71	46	25	65	75	30	15	43	99	77	92	39	21	23
93	33	30	47	48	42	30	48	97	78	50	23	50	41	71	61
38	48	42	95	48	92	50	45	48	95	90	40	94	96	46	95

IMEA

43	39	12	39	47	41	32	58	50	34	43	74	35	63	49	56
43	30	27	51	16	75	59	31	38	39	52	26	45	32	59	30
70	22	29	23	24	44	30	44	3	28	34	34	33	59	39	61
26	35	44	28	40	35	43	45	69	59	37	31	49	30	52	54
45	34	30	15	30	59	47	59	40	51	39	50	62	34	79	28
54	36	39	64	39	48	65	63	58	2	26	36	63	79	0	60
23	67	26	26	37	33	44	59	49	29	52	33	47	36	50	75
43	78	75	72	65	15	44	36	31	41	49	40	31	45	38	71
29	63	49	37	51	49	66	2	29	27	57	35	44	0	35	30
44	42	22	39	48	53	18	62	16	48	40	43	92	44	52	50
78	73	35	47	36	74	34	24	67	35	46	39	63	44	74	38
34	39	76	45	42	39	48	45	40	35	35	49	47	48	34	70
39	44	53	35	45	46	41	71	68	66	43	65	61	62	40	61
26	31	66	27	30	52	61	38	26	44	73	55	72	17	32	31
77	37	32	48	43	44	38	43	77	59	50	34	0	42	50	57
41	47	42	71	38	67	43	42	41	69	53	41	75	63	45	74

IVAR

28	2	88	18	30	13	65	335	83	2	29	642	41	419	18	310
114	65	59	106	77	397	356	45	27	50	73	152	5	29	520	34
586	59	38	84	49	57	52	12	12	26	13	27	22	243	11	278
209	21	25	42	14	25	13	8	411	194	15	42	94	35	137	132
5	70	12	116	12	461	157	365	6	111	27	67	108	22	528	34
290	18	27	348	18	6	680	105	79	2	28	27	543	450	0	324
80	730	47	58	17	28	478	884	27	50	218	82	11	15	173	451
12	468	471	504	279	156	6	7	25	7	45	16	27	74	21	578
53	681	157	503	580	1145	863	18	99	20	864	8	2	1	9	23
14	4	50	5	71	27	174	252	374	7	34	25	99	21	77	168
478	549	9	2	31	541	35	279	566	52	39	4	162	6	645	2
55	8	520	0	25	3	0	1	6	37	76	69	14	28	7	432
0	9	319	37	7	104	9	592	690	155	77	394	374	594	13	136
11	39	150	362	30	108	245	26	63	0	562	350	405	261	67	58
518	22	35	0	76	8	27	48	611	561	17	48	0	23	212	102
5	10	5	676	63	466	69	16	56	548	510	2	636	524	13	662

IEVENT

14	2	10	10	13	13	12	13	13	9	14	13	13	11	11	13
11	5	10	14	11	11	14	13	6	15	9	13	10	14	12	12
13	11	7	10	12	10	10	8	14	10	9	6	8	12	13	10
14	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	4	9	10	12	14	12	10	8	10	12	11	12	12	10
11	11	6	12	9	9	11	11	10	8	10	6	13	11	0	13
10	14	10	12	12	6	12	12	13	8	11	13	11	6	11	13
11	12	11	12	12	11	10	9	10	4	12	8	8	11	11	12
8	13	13	11	13	15	12	10	14	11	14	8	5	11	10	11
4	7	9	8	12	9	11	9	8	8	7	2	9	3	9	11
12	11	11	2	13	12	10	10	13	8	11	4	10	2	13	12
9	9	11	3	8	5	3	2	5	5	13	10	8	9	5	9
3	7	9	10	6	12	11	11	13	8	13	11	11	14	6	12
12	7	9	14	13	11	12	8	9	1	11	13	12	9	6	9
9	13	12	1	10	3	8	11	10	10	7	10	0	8	10	11
4	5	8	8	14	11	12	11	11	7	11	6	11	8	8	11

MSCORE

42	38	0	33	45	38	20	80	54	30	46	92	28	94	51	83
49	20	15	59	0	95	79	22	26	35	58	6	42	28	91	18
90	14	21	3	16	46	19	42	0	22	32	26	26	74	37	83
0	30	42	17	32	28	47	43	87	69	31	24	57	24	63	65
45	18	29	0	24	81	56	74	34	61	31	54	68	20	92	16
72	38	37	85	41	46	92	68	60	0	16	25	88	95	47	77
7	87	23	18	34	24	66	86	39	18	62	33	41	26	57	92
37	86	92	88	75	0	39	32	25	37	50	32	27	41	31	94
16	95	58	51	73	78	86	0	10	14	88	25	34	0	28	20
40	40	3	38	53	51	21	87	0	46	30	36	96	38	58	60
99	96	31	46	26	82	20	52	85	24	46	36	68	42	92	35
40	37	96	48	46	38	44	42	36	30	34	56	47	48	30	93
39	40	90	26	41	54	36	96	97	87	50	95	82	84	31	76
13	20	65	23	17	64	75	29	8	42	98	75	92	15	21	22
92	28	25	47	46	42	30	43	97	78	50	22	50	41	68	60
38	47	42	94	40	87	45	44	46	95	84	39	93	96	45	95

IMEAN

43 39 11 39 47 41 32 58 50 34 43 74 35 63 49 56
44 30 27 51 14 75 59 31 38 39 52 25 45 32 59 30
70 22 29 21 24 44 30 44 2 27 34 34 33 59 39 61
25 35 44 28 40 35 43 45 69 59 37 31 49 30 52 54
45 34 34 13 30 61 47 60 39 51 39 50 62 34 79 27
54 36 39 64 39 48 65 63 58 2 26 36 65 79 0 60
22 67 26 26 37 33 46 61 49 29 52 33 47 36 51 75
43 78 75 72 65 14 43 36 31 41 49 40 31 45 38 71
27 63 49 38 52 51 66 2 28 27 59 35 42 0 34 29
43 42 20 39 48 53 18 62 14 48 39 43 92 44 52 50
78 73 35 47 36 74 34 27 69 33 46 39 63 44 74 38
34 39 76 48 42 39 48 45 40 35 35 49 47 48 34 70
39 44 53 33 45 46 41 71 70 66 43 65 61 62 38 61
25 31 66 27 29 52 61 38 24 44 73 55 72 17 32 30
77 37 31 48 43 44 38 43 77 59 50 32 0 42 50 57
41 47 42 71 38 67 43 42 41 69 53 41 75 63 45 74

IVAR

28 2 93 18 30 13 65 335 83 2 29 642 41 419 18 310
106 65 59 106 92 397 356 45 27 50 73 171 5 28 520 34
586 59 38 113 49 51 52 12 12 27 13 27 22 243 11 278
242 21 25 42 14 25 13 8 411 194 15 42 94 35 137 132
5 70 18 125 12 457 157 351 9 111 27 67 108 22 528 45
290 18 27 348 18 6 680 105 79 2 28 27 543 450 0 324
97 730 47 59 17 28 473 864 27 50 218 75 11 15 160 451
12 468 471 504 279 162 8 7 25 7 45 16 27 69 21 578
65 681 151 473 569 1121 863 17 118 20 863 8 17 0 12 29
13 4 84 5 71 27 158 252 355 7 42 25 99 21 77 168
478 549 9 2 31 501 35 317 543 59 39 4 162 6 645 2
55 7 520 0 25 3 0 1 6 37 70 69 14 28 7 432
0 9 319 37 7 104 9 592 696 155 77 394 374 594 22 136
24 39 133 337 41 108 245 26 90 0 562 350 405 232 67 61
518 27 36 0 76 8 27 44 611 561 17 57 0 23 212 102
5 10 5 676 59 466 63 16 56 548 510 2 636 524 13 662

IEVENT

21	4	20	24	21	24	13	23	12	18	24	24	12	22	22	21
18	3	15	21	16	19	21	18	14	17	22	5	13	20	24	13
23	17	15	8	17	17	13	22	14	10	20	6	15	21	20	23
13	10	22	11	25	11	18	15	16	22	16	17	16	16	17	22
11	6	4	7	14	18	14	16	16	17	12	25	15	16	21	12
19	16	14	12	21	15	17	23	21	14	10	15	18	19	1	17
11	21	15	9	17	2	14	21	20	5	16	15	22	7	14	24
18	19	22	19	20	19	24	20	15	7	21	9	16	18	23	18
8	20	21	21	19	16	20	15	14	14	22	11	7	20	22	15
8	7	10	15	15	15	14	19	15	15	7	5	21	13	15	18
25	24	15	2	17	18	12	16	17	17	19	4	21	3	20	16
11	16	21	6	17	8	8	3	14	13	20	18	14	15	12	19
4	9	20	19	11	17	18	19	20	16	20	19	19	18	5	23
13	10	20	16	14	24	21	12	15	0	22	23	25	15	9	8
20	16	14	2	19	6	6	12	21	18	20	13	4	21	18	21
5	11	13	22	19	17	22	15	15	17	18	12	20	18	18	22

ISCORE

43	35	0	14	26	57	18	98	10	0	16	81	2	95	40	98
0	18	2	44	10	88	74	15	13	19	30	16	19	23	94	17
98	8	25	10	25	59	8	93	6	34	29	30	28	95	53	96
0	15	46	24	4	13	30	33	50	50	16	17	6	13	38	49
26	24	35	15	0	82	49	37	6	22	19	92	64	25	91	0
91	0	4	17	28	36	65	87	54	0	0	22	85	1	45	37
11	96	12	10	37	42	18	78	47	20	20	21	59	25	65	92
34	83	92	51	87	22	36	34	2	67	11	19	17	28	19	51
28	94	84	66	28	23	75	0	0	0	93	34	22	0	14	2
17	32	8	11	40	29	22	44	13	39	31	34	98	17	42	55
94	94	7	46	3	30	20	33	72	18	0	27	68	45	92	16
21	30	96	38	65	33	24	43	19	12	62	43	19	18	24	93
25	20	98	16	18	33	47	93	84	45	33	93	71	47	32	83
5	11	95	42	0	14	90	9	0	49	95	76	98	5	16	25
89	16	56	46	47	28	21	15	94	76	13	16	33	49	74	23
28	68	17	95	49	73	15	26	16	95	47	36	91	98	27	93

IMEAN

56	39	20	29	41	41	36	87	28	19	33	74	24	83	51	88
22	33	24	47	25	63	64	35	25	35	45	29	32	31	82	30
83	29	37	31	40	48	26	69	21	43	38	37	40	70	52	72
19	30	47	35	25	30	34	41	49	52	32	33	24	29	45	56
36	34	42	27	17	71	55	53	22	29	32	81	60	42	86	17
81	12	21	20	37	50	63	66	52	14	14	30	70	12	45	37
27	77	27	26	40	45	25	72	57	32	33	31	59	35	59	86
47	75	91	58	83	15	43	46	27	49	26	32	34	30	29	58
38	76	72	61	40	36	67	15	22	18	85	43	34	21	30	29
30	40	24	26	43	44	33	44	23	48	40	41	89	30	49	53
86	87	29	48	23	34	33	28	63	37	22	41	64	47	82	37
26	34	84	42	63	43	36	44	31	26	55	43	37	34	38	73
36	34	75	36	34	32	54	84	73	51	50	78	76	44	40	72
24	27	81	40	11	10	83	24	13	0	82	67	79	14	28	35
86	29	58	49	48	34	28	32	86	69	28	28	43	50	60	42
39	54	33	80	58	67	25	33	38	81	47	43	82	79	37	83

IVAR

98	12	204	102	89	19	160	160	141	180	71	366	193	281	49	225
244	64	235	12	129	255	74	120	86	68	12	130	129	29	266	91
262	194	49	90	56	73	89	379	151	29	54	30	59	506	26	571
222	91	49	53	161	109	26	16	90	21	72	98	168	86	56	97
40	55	7	91	262	159	63	138	106	49	71	439	64	85	184	129
305	137	146	44	46	54	108	133	64	226	209	41	236	94	0	28
72	214	74	71	37	4	129	325	58	34	80	74	18	71	42	274
73	213	117	52	115	115	23	76	187	72	63	73	102	34	57	309
33	460	197	136	157	96	312	161	160	180	265	36	22	217	112	174
73	33	121	126	24	77	41	14	136	26	29	24	130	74	22	21
311	175	120	0	191	58	59	122	151	118	187	22	115	2	304	144
39	43	344	12	62	31	65	2	72	105	63	16	109	61	64	369
101	43	487	99	69	63	50	231	208	22	91	225	151	48	43	184
109	158	263	49	108	60	304	121	115	0	343	159	351	128	80	61
145	98	42	0	21	28	30	112	223	145	132	62	13	44	178	117
54	123	88	243	122	200	124	38	84	366	70	27	321	322	63	411

IEVENT

21	4	20	24	21	24	13	23	12	18	24	24	12	22	22	21
18	8	15	21	16	19	21	18	14	17	22	5	13	20	24	13
23	17	15	8	17	17	13	22	14	10	20	6	15	21	20	23
13	10	22	11	25	11	18	15	16	22	16	17	16	16	17	22
11	6	4	7	14	18	14	16	16	17	12	25	16	16	21	12
19	16	14	12	21	15	17	23	21	14	10	15	18	20	1	17
11	21	15	9	17	2	14	21	20	5	16	15	22	7	14	24
18	19	22	19	21	19	24	20	15	7	21	9	16	18	23	19
8	20	21	21	19	16	20	15	14	14	22	11	7	20	22	15
8	7	10	15	15	15	14	19	15	15	7	5	21	13	15	18
25	24	15	2	17	18	12	17	17	17	19	4	21	3	20	16
11	16	21	6	17	8	8	3	14	13	20	18	14	15	12	19
4	9	20	19	11	18	18	19	20	16	20	19	19	18	5	23
13	10	20	16	14	25	21	12	15	0	22	23	25	15	9	8
20	16	14	2	19	8	6	12	21	18	20	13	4	21	18	21
5	11	13	22	19	17	22	16	15	17	19	12	20	18	18	22
MSCORE															
43	35	0	14	26	57	18	97	10	0	16	81	2	95	40	98
0	18	2	44	10	88	74	15	13	19	39	16	19	23	94	16
98	8	25	10	25	59	8	93	6	34	29	30	28	95	53	96
0	15	48	24	4	13	30	33	50	49	16	17	6	13	38	49
26	24	35	15	0	82	49	37	6	22	19	92	62	25	91	0
91	0	4	17	28	38	65	87	54	0	0	22	85	15	45	37
11	96	12	10	37	42	18	78	47	20	20	21	59	25	64	92
34	83	92	51	86	21	36	34	2	67	11	19	17	28	19	48
26	94	84	66	28	23	75	0	0	0	93	34	22	0	14	2
17	32	8	11	40	29	22	44	12	39	31	34	98	17	42	55
94	93	7	46	3	30	20	31	72	18	0	27	68	45	92	16
21	30	96	38	65	33	24	43	19	12	62	43	19	18	26	93
25	20	98	16	18	32	47	93	84	45	32	93	71	47	31	83
5	11	95	42	0	35	90	9	0	49	95	76	98	5	16	25
89	16	56	46	47	28	21	13	94	76	13	16	33	49	74	23
28	68	17	94	47	73	14	24	16	95	45	36	91	98	27	98

IMEAN

56	39	20	29	41	41	36	87	28	19	33	74	24	83	51	88
22	33	24	47	25	63	64	35	25	35	45	29	32	31	82	30
83	29	37	31	40	48	26	69	21	43	38	37	40	70	52	72
19	30	47	35	25	30	34	41	49	52	32	33	24	29	45	56
36	34	42	27	17	71	55	53	22	29	32	81	60	42	86	17
81	12	21	20	37	50	63	66	52	14	14	30	70	12	45	37
27	77	27	26	40	45	25	72	57	32	33	31	59	35	59	86
47	75	91	58	83	15	43	46	27	49	26	32	34	30	29	58
38	76	72	61	40	36	67	15	22	18	85	43	34	21	30	29
30	40	24	26	43	44	33	44	23	48	40	41	89	30	49	53
86	97	29	48	23	34	33	28	63	37	22	41	64	47	82	37
26	34	84	42	63	43	36	44	31	26	55	43	37	34	38	73
36	34	75	36	34	32	54	84	73	51	50	78	76	44	40	72
24	27	81	40	11	11	83	24	13	0	82	67	79	14	28	35
86	29	58	49	48	34	28	32	86	69	28	28	43	50	60	42
39	54	33	89	58	67	25	33	38	81	47	43	82	79	37	83

IVAR

98	12	204	102	89	19	160	160	141	180	71	366	193	281	49	225
244	64	235	12	129	255	74	120	86	68	12	130	129	29	266	91
262	194	49	90	56	73	89	379	151	29	54	30	59	506	26	571
222	91	49	53	161	109	26	16	90	21	72	98	168	86	56	97
40	55	7	91	262	159	63	138	106	49	71	439	64	85	184	129
305	137	146	44	46	54	108	133	64	226	209	41	236	91	0	28
72	214	74	71	37	4	129	325	58	34	80	74	18	71	42	274
73	213	117	52	115	115	23	76	187	72	63	73	102	34	57	309
33	460	197	136	157	96	312	161	160	180	265	36	22	217	112	174
73	33	121	126	24	77	41	14	136	26	29	24	130	74	22	21
311	175	120	0	191	58	59	122	151	118	187	22	115	2	304	144
39	43	344	12	62	31	65	2	72	105	63	16	109	61	64	369
101	43	487	99	69	63	50	231	208	22	91	225	151	48	43	184
109	158	263	49	108	64	304	121	115	0	343	159	351	128	80	61
145	98	42	0	21	28	30	112	223	145	132	62	13	44	178	117
54	123	88	243	122	200	124	38	84	366	70	27	321	322	63	411

IEVENT

22	4	22	27	29	26	19	28	26	23	23	24	23	21	26	24
23	12	18	28	26	24	24	20	15	27	25	14	19	22	28	19
22	20	20	23	20	25	26	19	22	23	21	13	10	23	24	21
17	12	23	15	21	12	22	21	22	24	19	23	26	20	23	24
17	11	8	16	17	17	23	21	15	19	15	24	23	21	25	14
18	17	8	19	18	13	22	17	20	21	15	17	16	22	1	18
18	20	21	18	21	11	23	23	18	9	21	19	20	17	19	26
19	25	21	24	24	23	22	21	13	4	23	8	18	20	23	24
10	19	24	20	23	22	23	15	20	17	20	10	9	20	18	15
11	13	16	16	16	17	20	15	22	20	14	9	21	11	18	18
22	24	17	1	18	21	22	23	23	20	20	9	21	4	22	23
18	16	20	1	17	9	5	4	15	10	22	17	15	19	16	19
10	12	21	24	17	25	19	23	23	18	23	25	20	26	12	24
20	19	23	23	22	28	27	18	25	3	23	25	21	22	13	11
17	19	21	3	18	8	15	22	22	23	20	14	2	18	23	23
7	16	14	22	18	23	21	19	14	19	23	12	21	19	18	20

MSCORE

5	36	7	0	11	23	9	68	31	1	0	71	0	0	26	62
0	8	0	5	0	52	83	0	13	22	36	6	14	3	43	0
12	5	0	0	5	51	17	99	10	6	23	27	7	98	64	99
0	6	59	0	5	6	24	11	67	59	2	0	9	1	36	24
9	0	14	0	44	94	89	69	42	86	24	98	70	22	58	0
41	13	21	55	33	36	59	60	38	0	0	28	87	98	45	30
7	70	6	0	51	23	73	87	55	0	56	24	24	20	90	97
27	88	96	75	88	12	34	31	16	71	34	13	0	60	50	97
27	4	98	46	92	63	85	0	8	25	97	25	25	0	21	19
25	28	1	28	40	7	50	86	16	44	22	20	99	18	63	67
98	98	18	49	1	52	4	29	76	10	46	23	90	46	97	17
25	13	99	38	40	23	27	38	20	19	27	40	30	23	20	82
16	10	99	0	48	41	29	84	99	75	40	76	86	51	21	57
0	0	98	36	4	68	78	8	0	40	98	82	99	6	15	30
97	0	68	49	46	29	33	12	98	93	27	32	43	72	75	40
29	65	30	97	0	51	28	36	0	98	40	32	99	99	30	98

IMEAN

27	39	9	12	28	35	26	57	39	13	20	65	16	4	34	51
20	24	21	22	4	44	70	19	24	30	36	19	28	12	36	7
6	22	22	14	18	48	33	76	26	20	34	35	25	89	59	85
12	26	55	20	30	22	30	26	62	50	21	18	28	3	45	34
30	19	31	9	41	84	68	66	45	71	31	74	67	37	50	11
48	26	37	54	40	42	59	58	44	2	25	34	74	89	49	42
23	63	27	21	50	31	62	76	59	20	52	31	32	32	74	85
41	84	78	71	82	14	43	47	32	59	44	32	19	54	57	86
39	5	81	42	83	55	81	15	27	37	85	39	35	18	30	36
39	36	18	39	43	26	47	76	19	44	33	26	84	30	57	57
89	88	25	49	23	52	24	31	64	29	56	36	88	48	87	30
30	25	84	39	43	37	39	46	31	28	26	48	39	38	34	73
28	28	68	19	43	33	39	83	76	66	45	67	86	51	33	52
3	11	84	40	15	58	69	24	11	42	81	65	82	14	28	38
91	17	58	49	40	36	38	24	85	81	41	43	46	59	63	47
35	56	35	85	24	55	34	36	21	81	39	40	78	83	37	85

IVAR

218	8	49	107	144	100	130	74	106	121	200	153	185	15	77	35
159	75	204	153	81	28	210	162	32	64	35	128	96	104	30	84
33	114	216	188	73	37	116	419	114	116	45	54	163	220	125	391
105	136	57	303	252	114	92	112	271	72	143	222	185	68	106	78
146	154	57	112	24	236	343	207	6	413	33	424	84	110	112	127
31	127	51	94	39	20	161	18	21	67	203	25	236	279	0	80
125	84	125	186	94	76	225	411	84	146	115	69	53	77	383	392
81	167	253	180	170	106	58	109	127	108	49	113	182	62	53	365
18	63	411	79	384	124	256	126	116	47	355	59	63	191	42	107
29	22	189	50	39	87	90	324	152	24	41	24	240	59	94	74
257	400	103	0	190	71	153	141	355	129	195	96	144	2	311	114
76	84	351	0	51	57	21	22	88	91	74	17	32	115	105	216
60	138	412	191	17	94	46	173	585	96	64	169	284	139	61	29
56	182	437	509	143	103	250	134	118	0	533	156	301	126	78	42
145	182	138	0	24	43	17	108	488	482	66	70	9	172	189	66
30	32	25	305	183	118	63	32	162	525	111	27	562	393	25	331

IEVENT

23	4	23	28	29	26	19	28	26	23	23	24	23	22	26	24
24	12	18	28	26	25	24	20	16	28	25	15	19	23	28	19
23	20	20	23	20	26	26	19	22	24	21	13	10	23	25	21
18	12	23	15	21	12	23	21	23	25	20	23	27	21	24	25
17	11	8	17	17	17	23	21	15	19	15	24	23	21	25	15
18	18	8	20	18	13	22	17	20	22	15	17	16	22	1	18
18	20	22	18	22	11	23	24	18	9	21	19	20	17	19	26
20	25	21	24	24	24	22	21	14	4	23	8	18	21	23	24
10	20	24	21	23	22	24	16	21	18	20	10	9	21	18	15
11	13	17	17	16	17	21	15	23	20	14	9	21	11	18	18
22	24	17	1	18	21	22	24	24	20	20	9	21	4	22	23
18	16	20	1	17	9	5	4	15	10	23	17	15	19	16	19
10	12	21	24	17	25	19	23	23	18	23	25	20	27	12	24
21	20	23	24	23	28	27	19	26	3	23	25	21	23	14	11
17	19	22	3	18	9	15	23	22	23	20	14	2	18	23	23
7	16	14	22	18	23	22	20	14	19	23	12	21	19	18	20

MSCORE

2	36	7	0	9	23	9	68	30	0	0	71	0	1	26	62
0	8	0	3	0	48	83	0	9	21	35	4	14	0	42	0
11	3	0	0	3	48	16	99	7	5	22	26	6	98	63	99
0	6	59	0	5	5	19	8	65	58	0	0	4	0	34	23
8	0	11	0	42	93	88	69	41	85	23	97	70	22	58	0
41	9	20	52	33	34	57	60	37	0	0	27	87	98	45	26
3	70	3	0	49	22	70	85	55	0	53	22	24	20	90	97
26	88	96	75	87	7	34	31	15	70	33	12	0	58	50	97
27	0	98	41	90	62	84	0	7	23	97	25	25	0	21	17
24	27	0	27	39	7	45	86	11	44	22	19	99	17	63	67
98	96	18	49	0	48	4	24	74	10	45	23	90	46	97	17
25	13	99	37	38	23	27	36	19	19	22	40	29	22	20	82
15	10	99	0	47	39	29	84	99	74	39	76	85	48	19	57
0	0	96	33	0	67	78	5	0	38	98	80	99	2	14	30
97	0	64	49	46	28	33	10	98	92	27	32	43	72	73	40
29	65	30	97	0	51	26	34	0	98	38	32	98	99	28	98

IMEAN

26	39	9	12	28	35	26	57	39	13	20	65	16	4	34	5
20	24	21	22	4	44	70	19	23	30	36	18	28	12	36	7
7	22	22	14	18	48	33	76	26	19	34	35	25	89	59	85
12	26	58	20	30	22	30	26	62	52	20	18	27	3	44	33
30	19	31	9	41	84	68	66	45	71	31	74	67	37	50	10
48	25	37	54	40	42	59	58	44	2	25	34	74	89	49	42
23	63	26	21	50	31	62	77	59	20	52	31	32	32	74	85
40	84	76	71	82	14	43	47	31	59	44	32	19	54	57	86
39	5	81	42	83	55	81	14	26	37	85	39	35	17	30	36
39	36	17	32	43	26	46	76	18	44	33	26	84	30	57	57
89	88	28	49	23	52	24	30	65	29	56	36	88	48	87	30
30	25	84	39	43	37	39	46	31	28	26	48	39	38	34	73
28	28	68	19	43	33	39	83	76	66	45	67	86	51	33	52
3	10	84	40	14	58	69	23	11	42	81	65	82	14	27	38
91	17	58	49	40	35	38	23	85	81	41	43	46	59	63	47
35	56	35	85	24	55	34	36	21	81	39	40	78	83	37	85

IVAR

235	8	47	108	144	100	130	74	106	121	200	153	185	14	77	35
170	75	204	153	81	28	210	162	44	65	35	135	96	106	30	84
32	114	216	188	73	36	116	419	114	120	45	54	163	220	121	391
108	136	57	303	252	114	93	112	260	71	158	222	200	66	106	80
146	154	57	110	24	236	343	207	6	413	33	424	84	110	112	126
31	136	51	89	39	20	161	18	21	64	203	25	236	279	0	80
125	84	146	186	90	76	225	397	34	146	115	69	53	77	383	392
88	167	253	180	170	104	58	109	138	108	49	113	182	60	53	365
18	61	411	75	384	124	246	132	129	56	355	59	63	197	42	107
29	22	197	55	39	87	86	324	148	24	41	24	240	59	94	74
257	400	103	0	190	71	153	138	344	129	195	96	144	2	311	114
76	84	351	0	51	57	21	22	88	91	72	17	32	115	105	216
60	138	412	191	17	94	46	173	585	96	64	169	284	135	61	29
54	179	437	490	147	103	250	146	119	0	533	156	301	127	86	42
145	182	133	0	24	44	17	112	488	482	66	70	9	172	189	66
30	32	25	305	183	118	63	31	162	525	111	27	562	393	25	331

IEVENT															
14	2	9	10	13	13	12	13	13	9	14	13	13	11	11	13
10	5	10	14	10	11	14	13	6	15	9	12	10	13	12	12
13	11	7	9	12	9	10	8	13	9	8	6	8	12	13	10
13	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	3	8	10	11	14	11	9	8	10	12	11	12	12	9
11	11	6	12	9	9	11	11	10	7	10	6	12	11	0	13
9	14	10	11	12	6	11	11	13	8	11	12	11	6	10	13
11	12	11	12	12	10	9	9	10	4	12	8	8	10	11	12
7	13	12	10	12	14	12	9	13	1[illegible]	13	8	4	10	9	10
8	7	6	8	12	9	10	5	7	7	6	2	9	3	9	11
12	11	11	2	13	11	10	9	12	7	11	4	10	2	13	12
9	8	11	3	8	5	3	2	5	5	12	10	8	9	5	9
8	7	9	10	8	12	11	11	12	8	13	11	11	14	5	12
11	7	8	13	12	11	12	8	8	1	11	13	12	8	6	8
9	12	11	1	10	3	8	10	10	10	7	9	0	8	10	11
4	5	8	8	13	11	11	11	11	7	11	6	11	8	8	11
MSCORE															
44	38	23	31	46	36	20	82	55	33	44	91	30	95	49	86
51	23	22	57	5	92	82	23	29	37	58	14	41	36	85	22
89	14	24	10	18	49	23	42	6	25	36	29	26	73	37	80
32	31	42	18	32	31	45	45	89	69	31	23	52	23	65	64
45	23	33	0	25	81	51	73	33	63	33	60	61	26	92	22
66	36	38	84	35	47	91	62	58	0	22	30	89	95	46	80
15	88	24	24	38	27	65	94	44	25	66	38	40	30	54	93
36	92	92	91	77	23	39	35	26	38	51	35	26	43	33	94
23	97	58	58	80	77	91	9	16	20	90	30	40	0	35	31
42	39	11	39	55	52	27	85	47	46	34	36	96	40	60	59
99	97	32	47	24	87	26	53	91	28	48	38	67	42	93	38
50	40	96	47	47	38	43	42	38	31	37	59	48	51	31	96
40	39	90	27	39	60	36	93	98	83	49	95	81	88	35	77
21	23	71	44	24	60	71	31	14	43	99	75	92	43	21	23
95	33	31	47	42	44	30	45	97	78	50	24	50	44	61	58
36	46	42	93	49	87	50	46	45	95	85	40	94	96	47	95

IMEAN

44	39	11	38	48	40	32	59	50	38	41	74	36	62	47	58
43	31	30	51	17	73	59	32	40	38	51	29	43	33	56	31
70	18	30	23	21	45	31	44	3	28	36	36	32	58	38	60
24	37	44	30	40	37	42	47	69	58	37	30	45	29	53	54
46	35	36	13	29	59	43	58	39	53	39	52	58	34	79	28
51	33	39	61	40	48	66	57	56	2	27	39	63	78	0	61
24	68	25	29	37	34	39	58	49	29	51	32	46	36	47	76
42	76	74	73	64	15	43	37	32	42	49	40	29	43	40	70
29	63	47	35	51	43	66	2	29	26	58	35	44	0	36	32
43	40	23	40	47	53	16	61	15	48	41	43	92	45	53	50
78	73	36	48	35	73	37	20	67	36	47	41	62	44	74	39
37	40	74	48	43	38	47	45	41	36	33	52	48	49	35	72
40	43	50	33	44	48	39	68	68	64	42	65	59	62	41	62
25	31	66	25	29	50	58	39	26	44	73	55	73	18	31	31
77	37	33	48	40	45	38	42	77	59	49	34	0	44	47	54
39	47	41	70	38	65	43	42	39	69	52	42	74	64	47	74

IVAR

24	2	86	17	30	16	67	333	94	3	24	558	35	470	9	315
102	65	37	67	78	312	354	40	17	41	74	117	4	34	437	37
586	81	39	85	58	54	54	10	14	25	13	25	24	227	14	231
177	23	25	34	15	19	10	11	459	205	12	48	60	35	146	107
4	69	12	130	15	414	117	292	9	118	23	78	64	21	503	39
243	13	27	346	13	6	707	65	67	5	17	15	541	468	0	327
76	692	59	47	15	27	386	354	30	48	220	83	11	15	148	456
12	488	473	511	236	160	7	6	21	6	46	13	33	39	17	571
49	675	145	441	522	952	839	20	103	27	840	9	2	0	7	17
10	3	52	11	66	25	158	230	349	5	28	25	90	14	83	157
480	556	9	1	36	558	28	265	633	42	30	3	148	6	651	2
64	8	487	0	27	4	0	1	2	36	63	83	16	39	6	463
0	8	310	34	12	113	10	930	704	122	77	384	361	601	10	143
14	39	154	343	33	70	208	23	69	0	569	323	405	327	59	58
552	22	30	0	64	3	27	34	630	582	17	43	0	33	123	87
6	5	6	656	70	404	68	21	49	534	452	4	638	510	17	662

IEVENT

14	2	10	10	13	13	12	13	13	9	14	13	13	11	11	13
11	5	10	14	11	11	14	13	6	15	9	13	10	14	12	12
13	11	7	10	12	10	10	8	14	10	9	6	8	12	13	10
14	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	4	9	10	12	14	12	10	8	10	12	11	12	12	10
11	11	6	12	9	9	11	11	10	8	10	6	13	11	0	13
10	14	10	12	12	6	12	12	13	8	11	13	11	6	11	13
11	12	11	12	12	11	10	9	10	4	12	8	8	11	11	12
8	13	13	11	13	15	12	10	14	11	14	8	5	11	10	11
4	7	9	6	12	9	11	9	8	8	7	2	9	3	9	11
12	11	11	2	13	12	10	10	13	8	11	4	10	2	13	12
9	9	11	3	8	5	3	2	5	5	13	10	8	9	5	9
3	7	9	10	8	12	11	11	13	8	13	11	11	14	6	12
12	7	9	14	13	11	12	8	9	1	11	13	12	9	6	9
9	13	12	1	10	3	8	11	10	10	7	10	0	8	10	11
4	5	8	8	14	11	12	11	11	7	11	6	11	8	8	11

MSCORE

44	38	0	31	46	36	20	82	55	33	44	91	30	95	49	86
47	21	20	56	0	92	80	23	29	33	57	10	41	30	85	17
89	9	21	3	12	46	20	41	0	22	33	28	26	73	36	80
0	31	42	18	32	31	45	45	89	69	30	23	52	22	65	63
45	19	29	0	24	78	49	70	32	63	32	57	61	22	92	15
66	34	36	84	39	46	91	60	58	0	19	30	88	95	46	78
8	88	22	21	34	26	57	87	39	19	62	33	40	26	52	92
36	89	92	88	73	0	38	33	26	38	51	33	22	36	32	94
17	95	56	47	72	68	85	0	10	12	88	25	36	0	28	23
38	38	4	39	52	50	17	85	2	44	32	36	96	40	60	59
99	97	32	47	24	82	23	45	87	27	45	38	67	42	93	36
44	38	96	47	47	37	43	42	38	31	30	59	47	50	31	96
40	39	89	27	39	57	34	93	97	83	49	95	81	85	33	77
11	20	65	22	16	59	71	30	7	42	98	73	92	19	21	22
94	28	26	47	40	44	30	40	97	78	50	23	50	44	58	57
36	45	42	92	41	82	45	45	43	95	79	39	93	96	46	95

IMEAN

44	39	10	38	48	40	32	59	50	38	41	74	36	62	47	58
43	31	30	51	16	73	59	32	40	38	51	27	43	33	56	31
70	18	36	21	21	45	31	44	2	27	36	36	32	58	38	60
23	37	44	30	40	37	42	47	69	58	37	30	45	29	53	54
46	35	34	11	29	61	43	59	39	53	39	52	58	34	79	27
51	33	39	61	40	48	66	57	56	2	27	39	65	78	0	61
22	64	25	28	37	34	40	60	49	29	51	32	46	36	48	76
42	78	74	73	64	14	43	37	32	42	49	40	29	42	40	70
28	63	46	36	52	44	66	2	28	26	60	35	42	0	35	31
42	40	20	40	47	53	16	61	13	47	40	43	92	45	53	50
78	73	36	48	35	74	37	23	68	34	47	41	62	44	74	39
37	40	74	48	43	38	47	45	41	36	33	52	48	49	35	72
40	43	54	33	44	48	39	68	71	64	42	65	59	62	39	62
24	31	66	25	28	50	58	39	24	44	73	55	73	18	31	30
77	36	33	43	40	45	38	41	77	59	49	33	0	44	47	54
39	47	41	70	38	65	44	42	39	69	52	42	74	64	47	74

IVAR

24	2	89	17	30	16	67	333	94	3	24	558	35	470	9	315
94	65	37	67	97	312	354	40	17	41	74	134	4	32	437	37
586	81	39	116	58	49	54	10	13	26	12	25	24	227	14	231
205	23	25	34	15	19	10	11	459	205	12	48	60	35	146	107
4	69	18	133	15	406	117	278	14	118	23	78	64	21	503	51
243	13	27	346	13	6	707	65	67	5	17	15	542	468	0	327
92	692	59	48	15	27	378	937	30	48	220	76	11	15	136	456
12	488	473	511	236	166	9	6	21	6	46	13	33	40	17	571
60	675	138	412	513	927	839	18	122	27	838	9	11	0	13	22
13	3	81	11	66	25	144	230	325	6	34	25	90	14	83	157
480	556	9	1	36	517	28	292	613	46	30	3	148	6	651	2
61	3	487	0	27	4	0	1	2	36	59	83	16	39	6	463
0	8	310	34	12	113	10	530	706	122	77	384	361	601	18	143
28	39	137	319	44	70	208	23	97	0	569	323	405	290	59	61
552	26	32	0	64	3	27	31	630	582	17	51	0	33	123	87
6	5	6	656	65	404	62	21	49	534	452	4	638	510	17	662

IEVENT

14	2	9	10	13	13	12	13	13	9	14	13	13	11	11	13
10	5	10	14	10	11	14	13	6	15	9	12	10	13	12	12
13	11	7	9	12	9	10	8	13	9	8	6	8	12	13	10
13	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	3	8	10	11	14	11	9	8	10	12	11	12	12	9
11	11	6	12	9	9	11	11	10	7	10	6	12	11	0	13
9	14	10	11	12	6	11	11	13	8	11	12	11	6	10	13
11	12	11	12	12	10	9	9	10	4	12	8	8	10	11	12
7	13	12	10	12	14	12	9	13	11	13	8	4	10	9	10
5	7	8	8	12	9	10	9	7	7	6	2	9	3	9	11
12	11	11	2	13	11	10	9	12	7	11	4	10	2	13	12
9	8	11	3	8	5	3	2	5	5	12	10	8	9	5	9
3	7	9	10	8	12	11	11	12	8	13	11	11	14	5	12
11	7	8	13	12	11	12	8	8	1	11	13	12	8	6	8
9	12	11	1	10	3	8	10	10	10	7	9	0	8	10	11
4	5	8	8	13	11	11	11	11	7	11	6	11	8	8	11

MSCORE

38	38	24	32	40	36	17	75	52	29	39	91	27	95	44	76
51	21	16	57	3	92	82	18	25	38	54	8	41	33	82	20
89	14	23	8	21	49	21	40	7	24	34	26	24	74	36	79
34	30	35	16	31	27	46	40	87	65	28	23	59	24	59	61
44	22	33	0	24	80	52	70	31	63	31	53	64	22	91	22
71	38	37	81	38	47	91	67	54	0	18	26	88	96	47	81
13	87	22	19	34	25	73	93	40	25	57	36	38	29	59	91
33	89	90	89	77	23	35	31	24	35	49	32	28	47	30	92
19	97	53	61	80	81	92	6	14	18	89	29	38	0	32	23
42	40	8	39	56	50	29	88	52	46	30	36	95	38	53	60
99	97	30	46	22	87	22	54	89	23	47	35	63	42	90	30
47	37	96	47	42	37	43	42	36	28	40	57	48	50	26	92
39	37	88	27	37	54	34	93	98	81	48	92	76	85	33	70
20	20	67	40	24	64	67	28	13	43	99	75	92	39	20	22
91	35	30	47	43	42	27	46	97	76	48	23	50	41	67	57
37	46	38	93	45	92	48	44	43	95	90	37	94	96	41	94

IMEAN

41	39	11	39	45	40	31	56	49	34	40	74	35	60	46	53
42	30	27	50	16	74	61	30	38	39	49	26	44	32	55	29
69	19	29	23	24	45	30	43	3	28	34	34	33	59	38	60
26	35	40	28	40	35	43	44	69	57	36	30	50	29	51	52
46	34	36	14	28	59	44	56	38	52	38	49	60	33	79	28
54	34	39	62	38	48	66	61	55	2	25	37	62	79	0	61
23	67	25	26	35	33	44	59	47	29	52	32	46	35	51	74
41	77	74	72	64	15	42	35	31	41	48	39	31	44	38	71
27	61	45	36	51	46	65	2	28	26	58	34	44	0	34	29
44	42	22	40	48	53	17	62	17	48	39	43	92	44	51	51
77	73	35	47	34	74	34	23	67	33	45	39	60	44	74	35
34	38	75	48	41	38	47	45	41	34	35	50	48	49	32	70
39	42	50	33	43	46	40	69	68	64	43	64	59	61	40	59
25	31	65	25	30	52	57	37	26	44	72	55	71	17	32	31
77	39	31	48	40	44	36	42	77	58	48	34	0	43	49	55
41	47	40	70	37	67	43	42	40	70	54	40	74	62	44	74

IVAR

21	2	93	20	26	10	86	265	73	2	23	622	44	422	8	223
109	72	64	70	77	334	379	66	29	53	55	173	4	27	397	44
600	80	38	90	50	56	51	7	15	28	15	30	23	247	13	229
197	21	18	47	17	29	11	6	439	182	12	44	97	37	107	104
5	70	12	114	13	430	121	285	10	131	31	52	86	24	536	37
292	14	27	329	14	6	691	89	56	1	32	25	511	450	0	375
85	724	50	61	11	28	480	908	22	48	227	76	15	17	195	425
25	466	454	495	250	162	16	6	28	12	44	22	27	61	23	557
68	656	99	489	581	996	874	12	113	29	865	9	2	0	8	25
14	3	56	7	72	29	164	270	415	8	42	25	104	21	52	176
463	556	10	2	47	548	38	236	559	64	32	6	152	6	632	5
64	6	512	0	18	3	0	1	6	44	74	79	17	36	14	425
0	14	279	33	17	89	12	530	694	109	66	357	322	584	13	96
14	43	134	310	32	103	178	32	69	0	554	338	414	264	74	64
523	27	39	0	59	8	42	45	628	536	12	48	0	27	171	84
7	10	5	663	45	489	70	19	49	537	564	5	640	494	10	652

IEVENT

14	2	10	10	13	13	12	13	13	9	14	13	13	11	11	13
11	5	10	14	11	11	14	13	6	15	9	13	10	14	12	12
13	11	7	10	12	10	10	8	14	10	9	6	8	12	13	10
14	5	11	9	13	9	12	10	10	10	11	10	8	10	10	10
9	6	4	9	10	12	14	12	10	8	10	12	11	12	12	10
11	11	6	12	9	9	11	11	10	8	10	6	13	11	0	13
10	14	10	12	12	6	12	12	13	8	11	13	11	6	11	13
11	12	11	12	12	11	10	9	10	4	12	8	8	11	11	12
8	13	13	11	13	15	12	10	14	11	14	8	5	11	10	11
4	7	9	0	12	9	11	9	8	8	7	2	9	3	9	11
12	11	11	2	13	12	10	10	13	8	11	4	10	2	13	12
9	9	11	3	8	5	3	2	5	5	13	10	8	9	5	9
3	7	9	10	8	12	11	11	13	8	13	11	11	14	6	12
12	7	9	14	13	11	12	8	9	1	11	13	12	9	6	9
9	13	12	1	10	3	8	11	10	10	7	10	0	8	10	11
4	5	8	8	14	11	12	11	11	7	11	6	11	8	8	11

MSCORE

38	38	6	32	40	36	17	75	52	29	39	91	27	95	44	76
47	19	14	56	0	92	80	18	25	34	53	4	41	27	82	15
89	9	20	1	15	46	18	39	0	21	31	25	24	74	35	79
0	30	35	16	31	27	46	40	87	65	27	23	59	23	59	60
44	18	29	0	23	77	50	67	30	63	30	50	64	18	91	15
71	36	37	81	38	46	91	65	54	0	15	26	87	96	47	79
6	87	20	16	30	24	65	86	35	19	63	31	38	25	57	90
33	86	90	86	73	0	34	29	24	35	49	30	24	40	29	92
13	95	51	50	71	72	86	0	8	10	87	24	34	0	25	15
38	39	1	39	53	48	19	88	5	44	28	36	95	38	53	60
99	97	30	46	22	82	19	46	85	22	44	35	63	42	90	28
41	35	96	47	42	36	43	42	36	28	33	57	47	49	26	92
39	37	87	27	37	51	32	93	97	81	48	92	76	82	31	70
10	18	61	18	16	63	67	27	6	42	98	73	92	16	20	21
90	30	25	47	41	42	27	41	97	76	48	22	50	41	64	56
37	45	38	92	37	87	43	43	41	95	84	36	93	96	40	94

IMEAN

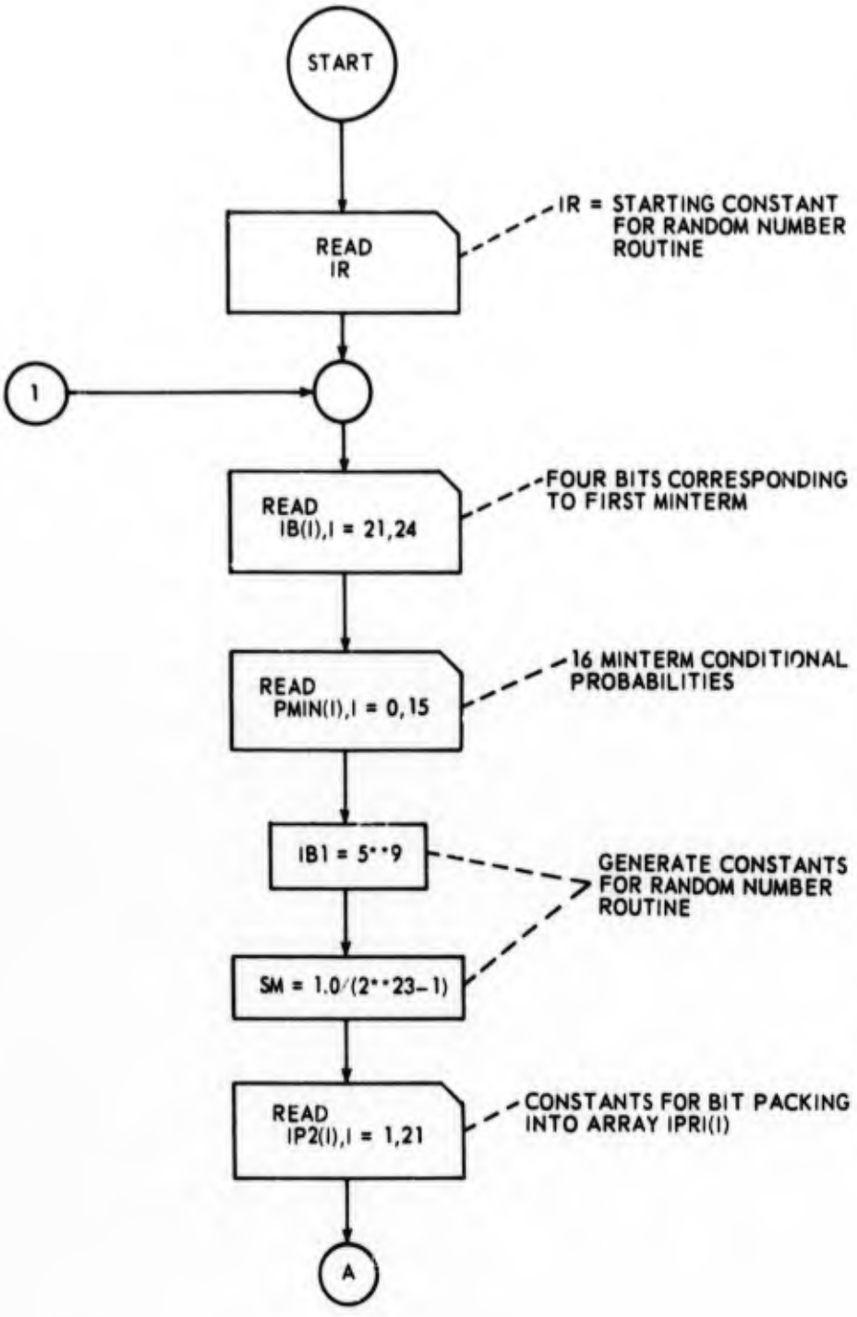
41	39	10	39	45	40	31	56	49	34	40	74	35	60	46	53
43	35	27	50	15	74	61	30	38	39	49	24	44	32	55	29
69	19	29	21	24	45	30	43	3	27	34	34	33	59	38	60
24	35	40	28	40	35	43	44	69	57	36	30	50	29	51	52
46	34	34	13	28	60	44	57	37	52	38	49	60	33	79	27
54	34	39	62	38	48	66	61	55	2	25	37	64	79	0	61
21	67	25	25	35	33	46	61	47	29	52	32	46	35	51	74
41	77	74	72	64	14	41	35	31	41	48	35	31	43	38	71
25	61	45	39	53	47	65	1	27	26	60	34	42	0	33	27
42	42	20	40	48	53	17	62	15	47	38	43	92	44	51	51
77	73	35	47	34	74	34	25	68	32	45	39	60	44	74	35
34	38	75	48	41	38	47	45	41	34	35	50	48	49	32	70
39	42	50	33	43	46	40	69	70	64	43	64	59	61	38	59
23	31	65	25	29	52	57	37	23	44	72	55	71	17	32	30
77	38	31	48	40	44	36	42	77	58	48	32	0	43	49	55
41	47	40	70	37	67	43	42	40	70	54	40	74	62	44	74

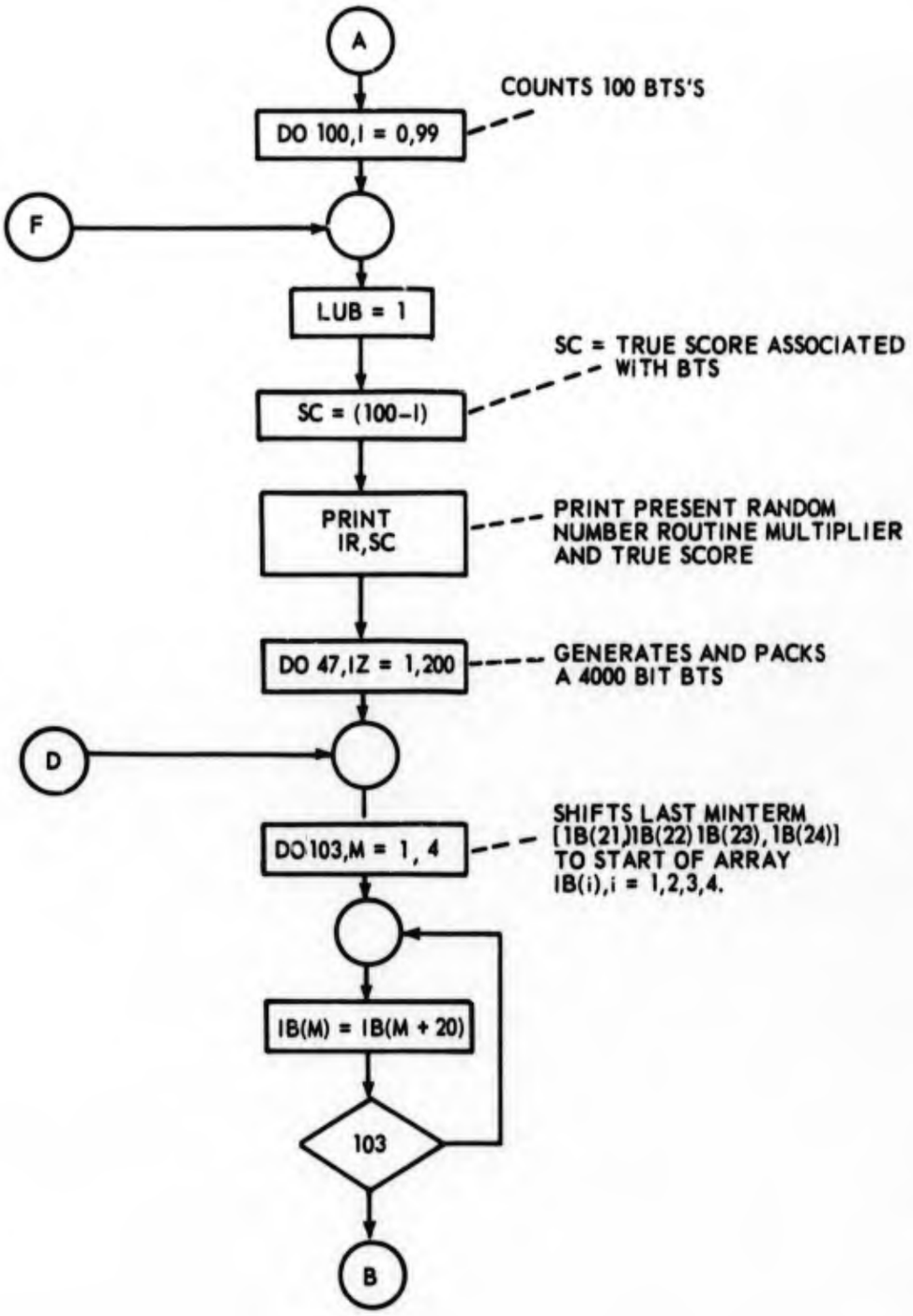
IVAR

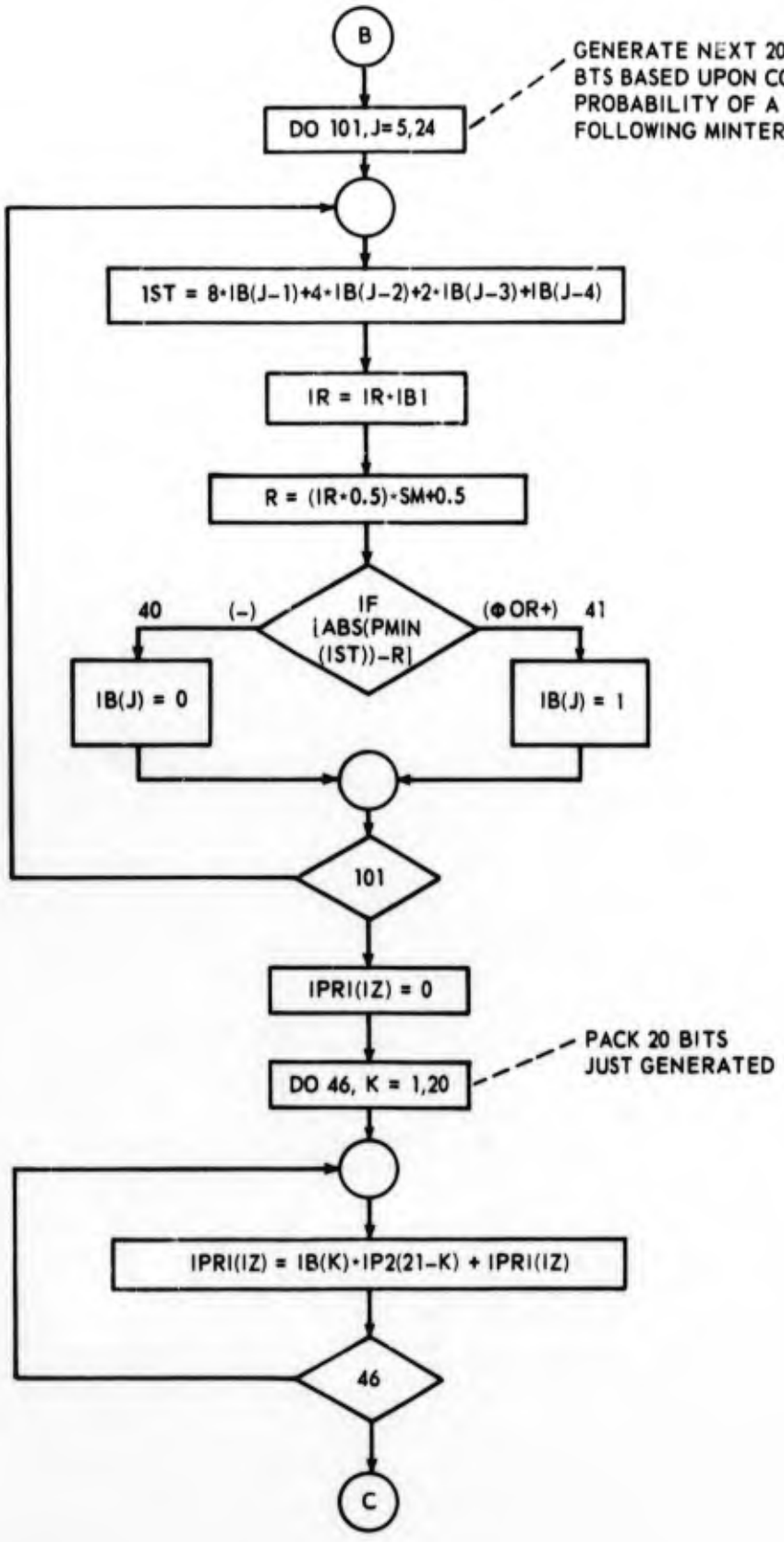
21	2	95	20	26	10	86	265	73	2	23	622	44	422	8	223
101	72	64	70	93	334	379	66	29	53	55	194	4	27	397	44
600	80	38	126	50	50	51	7	15	30	14	30	23	247	13	229
229	21	18	47	17	29	11	6	439	182	12	44	97	37	107	104
5	70	18	123	13	418	121	270	15	131	31	52	86	24	536	50
292	14	27	329	14	6	691	89	56	2	32	25	515	450	0	375
104	724	50	65	11	28	473	886	22	48	227	70	15	17	180	425
25	466	454	495	250	167	20	6	28	12	44	22	27	57	23	557
83	656	93	456	563	972	874	11	134	29	859	9	17	0	16	38
17	3	95	7	72	29	149	270	379	9	53	25	104	21	52	176
463	556	10	2	47	507	38	260	537	71	32	6	152	6	632	5
64	6	512	0	18	3	0	1	6	44	68	79	17	36	14	425
0	14	279	33	17	89	12	530	700	109	66	357	322	584	22	96
30	43	121	292	45	103	178	32	101	0	554	338	414	235	74	67
523	31	39	0	59	8	42	41	628	536	12	57	0	27	171	84
7	10	5	663	42	489	65	19	49	537	564	5	640	494	10	652

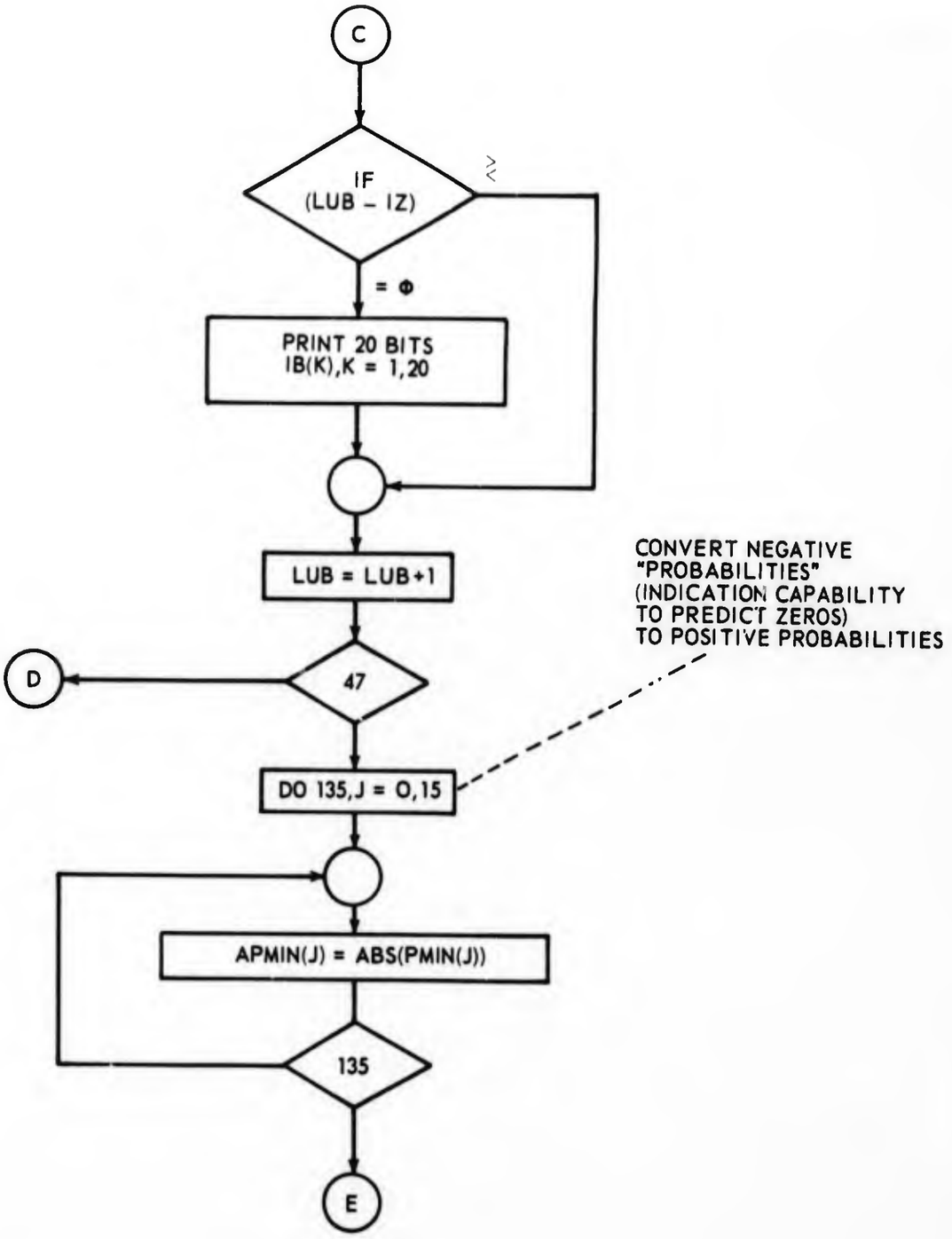
APPENDIX 18

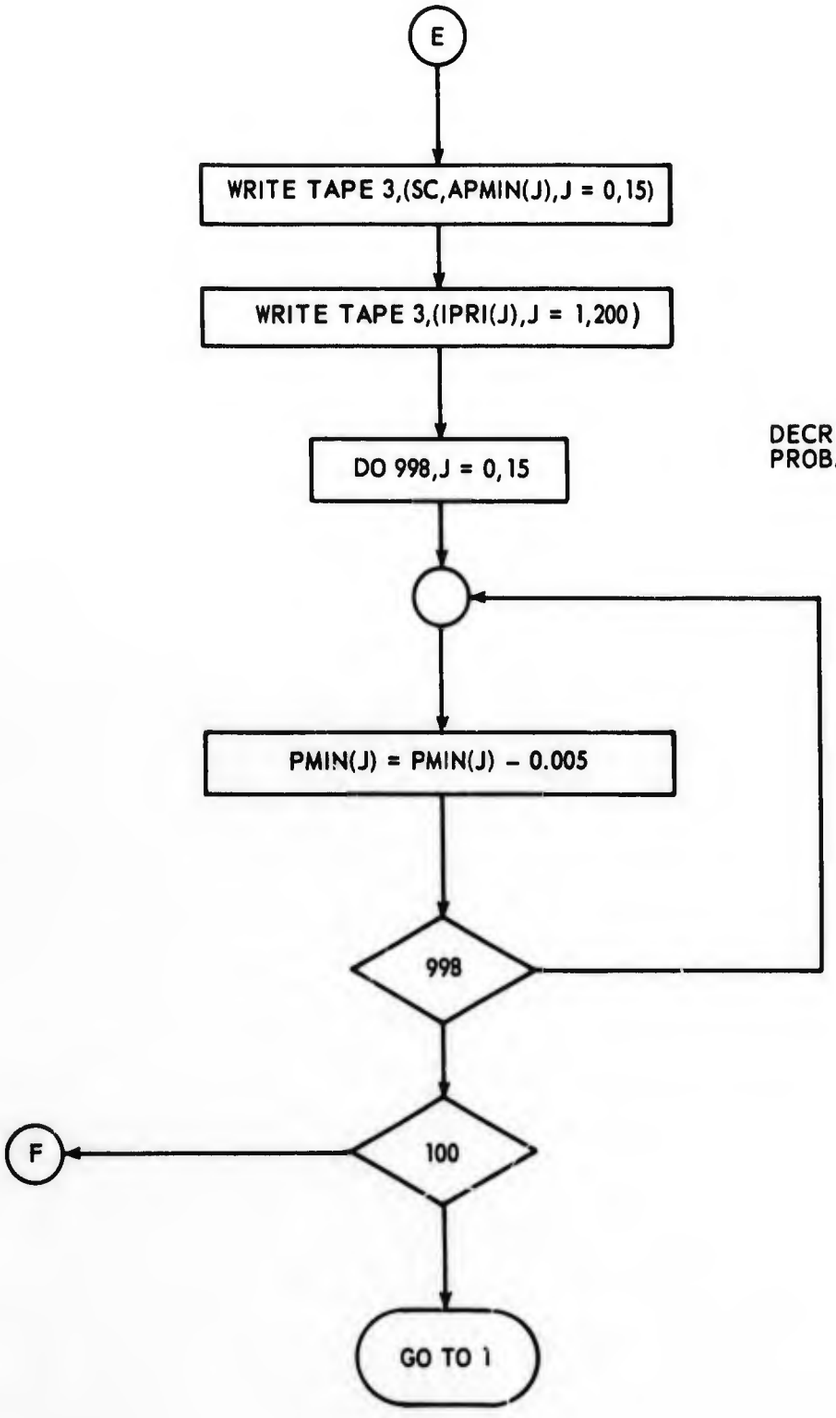
PROGRAM FOR GENERATION OF LOGICALLY STRUCTURED BTS SEQUENCES


START
READ
IR
IR = STARTING CONSTANT FOR RANDOM NUMBER ROUTINE
1
READ
IB(I),I = 21,24
FOUR BITS CORRESPONDING TO FIRST MINTERM
READ
PMIN(I),I = 0,15
16 MINTERM CONDITIONAL PROBABILITIES
IB1 = 5**9
GENERATE CONSTANTS FOR RANDOM NUMBER ROUTINE
SM = 1.0/(2**23-1)
READ
IP2(I),I = 1,21
CONSTANTS FOR BIT PACKING INTO ARRAY IPRI(I)
A


A
COUNTS 100 BTS'S
DO 100,I = 0,99
F
LUB = 1
SC = TRUE SCORE ASSOCIATED WITH BTS
SC = (100-I)
PRINT IR,SC
PRINT PRESENT RANDOM NUMBER ROUTINE MULTIPLIER AND TRUE SCORE
DO 47,IZ = 1,200
GENERATES AND PACKS A 4000 BIT BTS
D
SHIFTS LAST MINTERM [IB(21),IB(22) IB(23), IB(24)] TO START OF ARRAY IB(i),i = 1,2,3,4.
DO 103,M = 1, 4
IB(M) = IB(M + 20)
103
B


B
GENERATE NEXT 20 BITS IN BTS BASED UPON CONDITIONAL PROBABILITY OF A "ONE" FOLLOWING MINTERM IST.
DO 101, J=5,24
IST = 8*IB(J-1)+4*IB(J-2)+2*IB(J-3)+IB(J-4)
IR = IR*IB1
R = (IR*0.5)*SM+0.5
IF |ABS(PMIN (IST))-R|
40
(-)
(⊕OR+)
41
IB(J) = 0
IB(J) = 1
101
IPRI(IZ) = 0
PACK 20 BITS JUST GENERATED
DO 46, K = 1,20
IPRI(IZ) = IB(K)*IP2(21-K) + IPRI(IZ)
46
C


C
IF
(LUB – IZ)
≥
= Φ
PRINT 20 BITS
IB(K),K = 1,20
LUB = LUB+1
47
D
DO 135,J = 0,15
CONVERT NEGATIVE
"PROBABILITIES"
(INDICATION CAPABILITY
TO PREDICT ZEROS)
TO POSITIVE PROBABILITIES
APMIN(J) = ABS(PMIN(J))
135
E


E
WRITE TAPE 3,(SC,APMIN(J),J = 0,15)
WRITE TAPE 3,(IPRI(J),J = 1,200)
DO 998,J = 0,15
DECREMENT MINTERM PROBABILITIES
PMIN(J) = PMIN(J) – 0.005
998
100
F
GO TO 1

```
*     1  *      ARS * 68 * JOB 8054
*     2  C      RELATIVE PERFORMANCE EVALUATION BASED UPON EXAMINATION OF
*     3  C      MINTERM PROBABILITIES IN TRAINING SEQUENCES.
*     4  C      GENERATION OF TRAINING/SCORING BTS SEQUENCES.
*     5         DIMENSION IB(  24), PMIN(0/15),IPRI(200), IP2(21)
*     6        1,ICTU(0/15), ICTD(0/15), APMIN(0/15)
*     7         READ 8, (IR)
*     8         READ 8, (IP2(I), I=1,21)
*     9       8 FORMAT (I7)
*    10       1 READ 9, (IB(I), I= 21, 24 )
*    11       9 FORMAT (4I1)
*    12         READ 10, (PMIN(I), I=0,15)
*    13      10 FORMAT (F4.2)
*    14         IB1 = 5**9
*    15         SM = 1.0/(2**23-1)
*    16         DO 100 I=0,99
*    17         SC = (100 - I)
*    18         PRINT 130, SC
*    19    130 FORMAT (20X,F8.3,/)
*    20         LUB = 1
*    21         PRINT 3, (IR)
*    22       3 FORMAT (10X,I7)
*    23         DO 47 IZ = 1,200
*    24         DO 103 M=1,4
*    25     103 IB(M) = IB(M+20)
*    26         DO 101, J=5,24
*    27         IST = 8*IB(J-1) + 4*IB(J-2) + 2*IB(J-3) + IB(J-4)
*    28         IR = IR * IB1
*    29         R = (IR+0.5)*SM + 0.5
*    30         IF ( ABS(PMIN(IST)) - R) 40,41,41
*    31      40 IB(J) = 0
*    32         GO TO 101
*    33      41 IB(J) = 1
*    34     101 CONTINUE
*    35         IPRI(IZ) = 0
*    36         DO 46, K = 1,20
*    37         IPRI(IZ) = IB(K) * IP2(21-K) + IPRI(IZ)
*    38      46 CONTINUE
*    39         IF ( LUB - IZ) 47,123,47
*    40     123 PRINT 125, (IB(J),J=1,20)
*    41     125 FORMAT (20X,20(I1))
*    42         LUB = LUB + 10
*    43      47 CONTINUE
*    44         PRINT 48
*    45      48 FORMAT (1H1)
*    46         DO 135 J=0,15
*    47     135 APMIN(J) = ABS(PMIN(J))
*    48     124 WRITE TAPE 3, (SC, (APMIN(J), J=0,15) )
*    49         WRITE TAPE 3, (IPRI(J), J=1,200 )
*    50         DO 998 J=0,15
*    51         PMIN(J) = PMIN(J) - 0.005
*    52     998 CONTINUE
*    53     100 CONTINUE
*    54         PRINT 3, (IR)
*    55         GO TO 1
*    56  *      END

PROGRAM ALLOCATION

  00015 IB        00045 PMIN      00105 IPRI      00415 IP2
  00442 ICTU      00462 ICTD      00502 APMIN     00542 IR
  00543 I         00544 IB1       00545 LUB       00546 IZ
  00547 M         00550 J         00551 IST       00552 K
  00553 SM        00555 SC        00557 R

SUBPROGRAMS REQUIRED

  ABS
THE END
```

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APPENDIX 19

LOGICALLY STRUCTURED PARTIAL BTS SEQUENCES REPRESENTING VARIOUS ENSEMBLE MEMBERS FOR SEVERAL SCORE VALUES

6655774

```
11110100011100100011
01110010001110010001
11001000111001000111
01110010001110010001
11001000111001000111
00011100100011100100
01110010001110010001
00011100100011100100
01110010001110010001
10010001110010001110
00011100100011100100
00111001000111001000
11110010001110010001
10010001110010001110
11100100011100100011
10001110010001110010
10010001110010001110
11100100011100100011
10001110010001110010
00111001000111001000
11100100011100100011
```

Partial BTS Sequence from 1st Ensemble

Member Representing Score of 100

5815522

```
11110100101001010010
00101001011110100101
00101001010010100101
00101001010010100101
00101001010010100101
00101001010010100101
00101001010010100101
00101001010010100101
01001010010100101001
01001011110100101010
10101001010010100100
10010100101001010010
10010100101001010010
01010010100101001010
01001010010100101001
00101001010010100101
10010100101001010010
11010010100101001010
10010100101001010010
```

Partial BTS Sequence from 2nd Ensemble

Member Representing Score of 100

2160414

```
1111CCC1111CCC111100
1CCC1111CCC1111CCC11
CCC1111CCC1111CCC111
CCCCCCCCCCCCCCCCCCCC
CCC1111CCC1111CCC111
1111CCC1111CCC1111CCC
CC1111CCC1111CCC1111
C1111CCC1111CCC11110
1CCC1111CCC1111CCC11
CCCCCCCCCCCCCCCCCC11
C1111CCC1111CCC11110
11CCC1111CCC1111CCC1
CC1111CCC1111CCC1111
C1111CCC1111CCC11110
CCC1111CCC1111CCC111
C1111CCC1111CCC11110
1CCC1111CCC1111CCC100
CC1111CCC1111CCC1111
1CCC1111CCC1111CCC11
1111CCC1111CCC111100
CCC1111CCC1111CCC111
```

Partial BTS Sequence from 3rd Ensemble Member Representing Score of 100

2570850

100.000

2570850

```
1111CC1CC1CC1CC1CC10
1CC1CC1CC1CC1CC1CC1C
1CC1CC1CC1CC1CC1CC1C
C1CC1CC1CC1CC1CC1CC1
CC1CC1CC1CC1CC1CC1CC
C1CC1CC1CC1CC1CC1CC1
CC1CC11CC1CC1CC1CC1C
11CC1CC1CC1CC1CC1CC1
CC1CC1CC1CC1CC1CC1CC
C1CC1CC1CC1CC1CC1CC1
CC1CC1CC1CC1CC1CC1CC
1CC1CC1CC1CC1CC1CC1C
C1CC1CC1CC1CC1CC1CC1
1CC1CC1CC1CC1CC1CC11
1CC1CC1CC1CC1CC1CC1C
CC1CC1CC1CC1CC1CC1CC
```

Partial BTS Sequence from 4th Ensemble Member Representing Score of 100

100.000

4432098

```
11110110110110110110
00011011011011011011
10110110110110110110
11011011011011011011
01101101101101101101
11011011011011011011
01101101101101101101
01101101101101101101
11011011011011011011
01101101101101101101
01101101101101101101
11011011011011011011
11011011011011011011
01101101101101101100
10110110110110110110
11011011011011011011
11011011011011011011
11011011011011011011
11011011011011011011
11011011011011001
```

Partial BTS Sequence from 5th Ensemble

Member Representing Score of 100

8349982

1C1000111C100110C10C
C10001C000111CC11100
11CC1CCC111001011001
CCCC111C1C110C1C111C
C11C01C110C1011C111C
C1C000C1001C001110011
1C001111C01C001110010
11CC011C0C1001000C11C
10C1C0C111C011C1C10C
C1C01C0C11100100C11C
CC1C01CCCC1111000C01
CCC11C01C0C100011111C
1CCC01C001C01C0CC001
1C1101C0CCC110100C10C
C1C111C01CC1011010C
111C01C01CCC11101CCC
CCC1111CC0111CC10001
111C01C11CC111010CCC
CC11111C1CC0011C0001
CCC111C1CCC101011001

Partial BTS Sequence from 1st Ensemble

Member Representing Score of 50

2286306

C1CC1CCCCC1100001111
1CC1C1CC1111110CC11C
CC1C111C1C10C1C1CCCC
CCCCCCCCCCCCC1101111
1CCCCCC11111C111C1CC
CCCC11C1CC1001CCC11C
1CC1C1CC111100110100
C1CC1C1CC11100001C1C
1CCCCCCCCC1100C10100
C1C1CC1CCC11C1C10011
CC1C1CC11C1C10011111
C1CC1C1C1111C1C1CC1C
1CCC111111C111CCC110C
CCC11C1CC1CCC1111C1C
1CC11C111CCCCCC1110
1C111CCC11C1CC1CC011
1111CCC11C1111C10001
C1C1C1C1CC1CC1CC1C1C
CCCCC1C1CCCCCCCCC101
1C1C1CC1CC1CC1CC1C1C

Partial BTS Sequence from 2nd Ensemble

Member Representing Score of 50

50.000

7524638

```
1110001C01111C001111
000110010001100010C0
1100100110001111C111
01C11C10C11001100111
1111100011111C111101
011110C1111000111101
1110101100011110C011
10C1111001111100C111
1110100000C11C001100
1110101101C011111010
0000000000100111101111
000111000110011111100
010011C010011111CC011
001111011003111100000
1100010000C00111C101
1111010111100110C111
011110001001110C0011
100000000C001111C001
000110001100011100
1110000C001111000100
```

Partial BTS Sequence from 3rd Ensemble

Member Representing Score of 50

42283B2

```
001001CC10C100100100
1010C0C11CC011CC0110
0011010100100110011C
1110011011110C110C10
11C111CC11C00C011001
1111001CC0C10C110000
11C1CC10C1C110010011
1011111CC01010111100
CCCC11C1111001C0C011
1101001CC1C111100100
01CC0011000011001100
0010010C000C111100110
0C10C1C011C00C111100
0010001111100100010C
0011001110010111C010
0001100100100100100
0110010110C010110C10
00101110C1C101100100
01C01010000110011001
1111010000110000100
```

Partial BTS Sequence from 4th Ensemble

Member Representing Score of 50

50.000

4602142

```
00100110100011010010
01101101100100011010
11110110100011110010
10111011011011010001
10110110011001100100
11101000110110110110
10001000100110010001
00011100011011110010
10110111011011100000
01000000000100011101
10000011101100011100
00011011101101000101
11010010010000110010
01000000000000010001
00100011101100100001
10000000110000011011
11101000000100100010
10110010000001000011
00000000001101101011
01110110000000000110
```

Partial BTS Sequence from 5th Ensemble

Member Representing Score of 50

1.000

4682210

```
0111011111C100110100
0010100010110100101C
1100010CC1101C010000
1110111010011011010I
0011111011101000110I
1001110100100000011C
1101000001111011100I
1111100101C111000010
0001001110C011000110
0000011010100110010
1011010101C011100001
1001100010110101110C
0000101001100010000C
1100011001111C0C1100
0011010101101010010I
1101101100110100001I
1000001111C010001111
0110100101111C011110
1000000C11111C101101
1011001000100110C011
```

Partial BTS Sequence from 1st Ensemble

Member Representing Score of 1

7619102

```
11C0011010110101011
0101000110001010010I
1110111010100111010I
1111010110101100C100
1000101111001000010C
1001101000110C100101
0010111101101101111I
1110011101100011110C
1101010010C10010100I
0010011100001001010I
1110011011010110001I
0010100111111010100C
1000011001011001001C
0001000100101101101C
0100000C0011001111100
1100101001100011101I
1101010100111111C111
1000001000100101011C
0110100010C110010101
1000001110C011001000
```

Partial BTS Sequence from 2nd Ensemble

Member Representing Score of 1

1.000

6613214

```
001C10C1C1101C0CC011
11C1111111100C110001
00C1011C1011110011011
1111CCC111C11C1CC011
01C1011CCC101C1C1111C
0CCCC11CC1130010CC1CC
C0111C1CC1110110101
CCC1101C1011CCCC1001
1CC01CCC11C01C110CCC
11CCC1CCC1C1C1101100
100C11C111C011100110
C1C1C1C1C1CC01CC1111
10C10111C11101111110
11C1CCC1CCCC011111111
CC1CC1CCCC1111C11001
011111C111C01CC111C
1C1C1C1CCC11111011011
011111C1C111110C1011
CC1CCCCCC1CCCCCC0101
1111111CCCCC1C010011
```

Partial BTS Sequence from 3rd Ensemble

Member Representing Score of 1

7099874

```
001110CCCCCC110C1001
11C1C1C111101101C011
C11CCC11C11101C01110
C1C1CC:1CCC1C1011101
1111011C11C11C110101
CCCC1CCCC11CCCCCCCCC
1111100101111011C1CC
CC1110C1CC1110C10101
CC1101101110C1C1C11C
0111C1111C1C1C1011CC
11C1C111110C1CC1CCC01
1C1111111CC111C010110
CCCC1C1C1111100110CCC
011110110C1C0111C1011
C1CC1CCC1CC11CCC1C11
11CCC1C11C1111111111
C1111110C1CCC1111101
1CCCCCC1CC1CC1C1C1C1C
CC1CCC11CC1111011CC1
1110101011C111CCCC11
```

Partial BTS Sequence from 4th Ensemble

Member Representing Score of 1

1.000

-565730

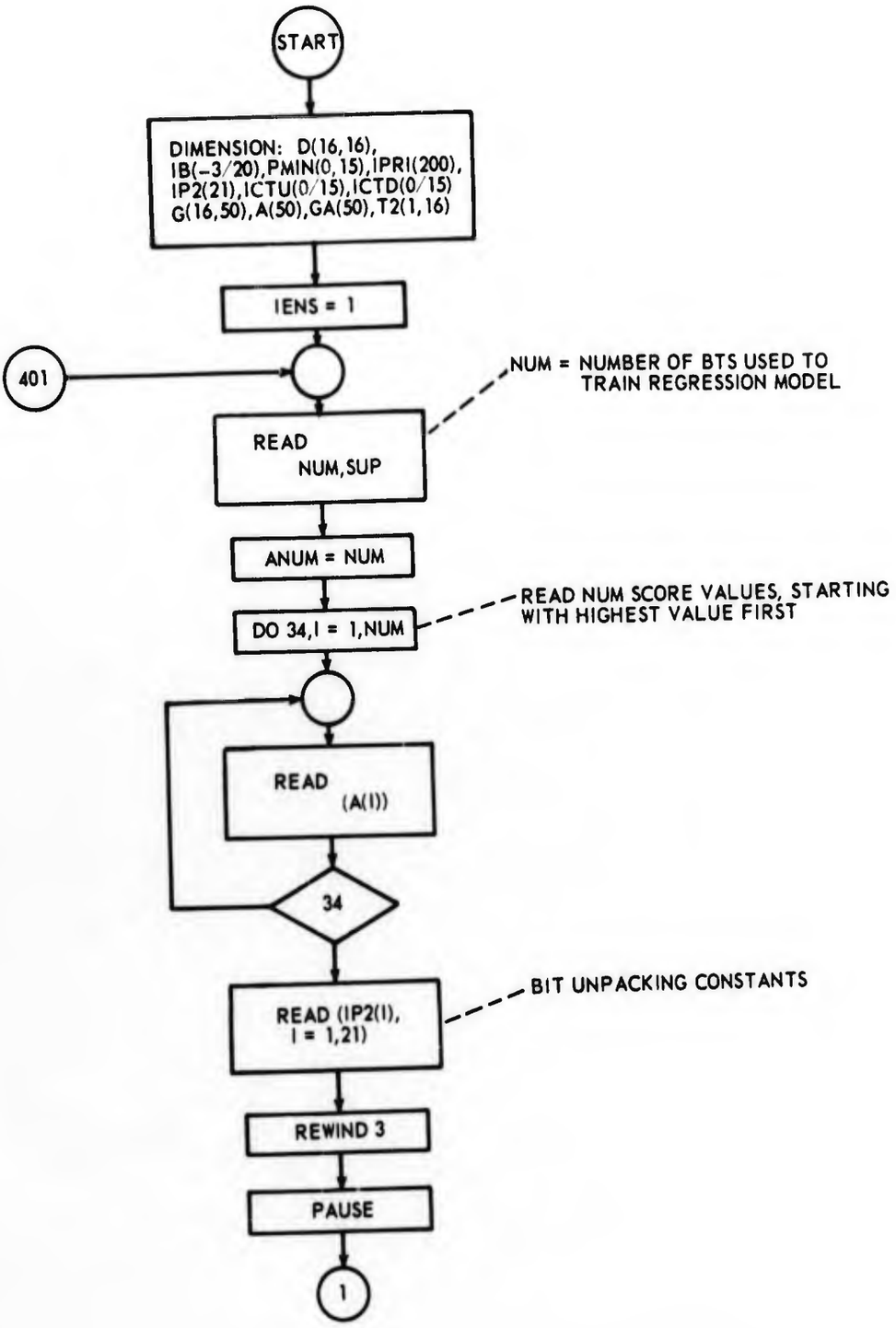
```
10010101001011101000
01111001010110111111
01101011011011010011
00100110011111000010
00101011111000111010
01001010000111110001
10000110003001110101
10001111100010000001
11000101110011110110
10110001101110100000
00100000001010001101
01010000000100011001
00100011011011110001
00100001100101111110
00010100111100111000
10001001010001100101
10110010010011010010
11001100010001101010
01111111110101101011
00000111010000011011
```

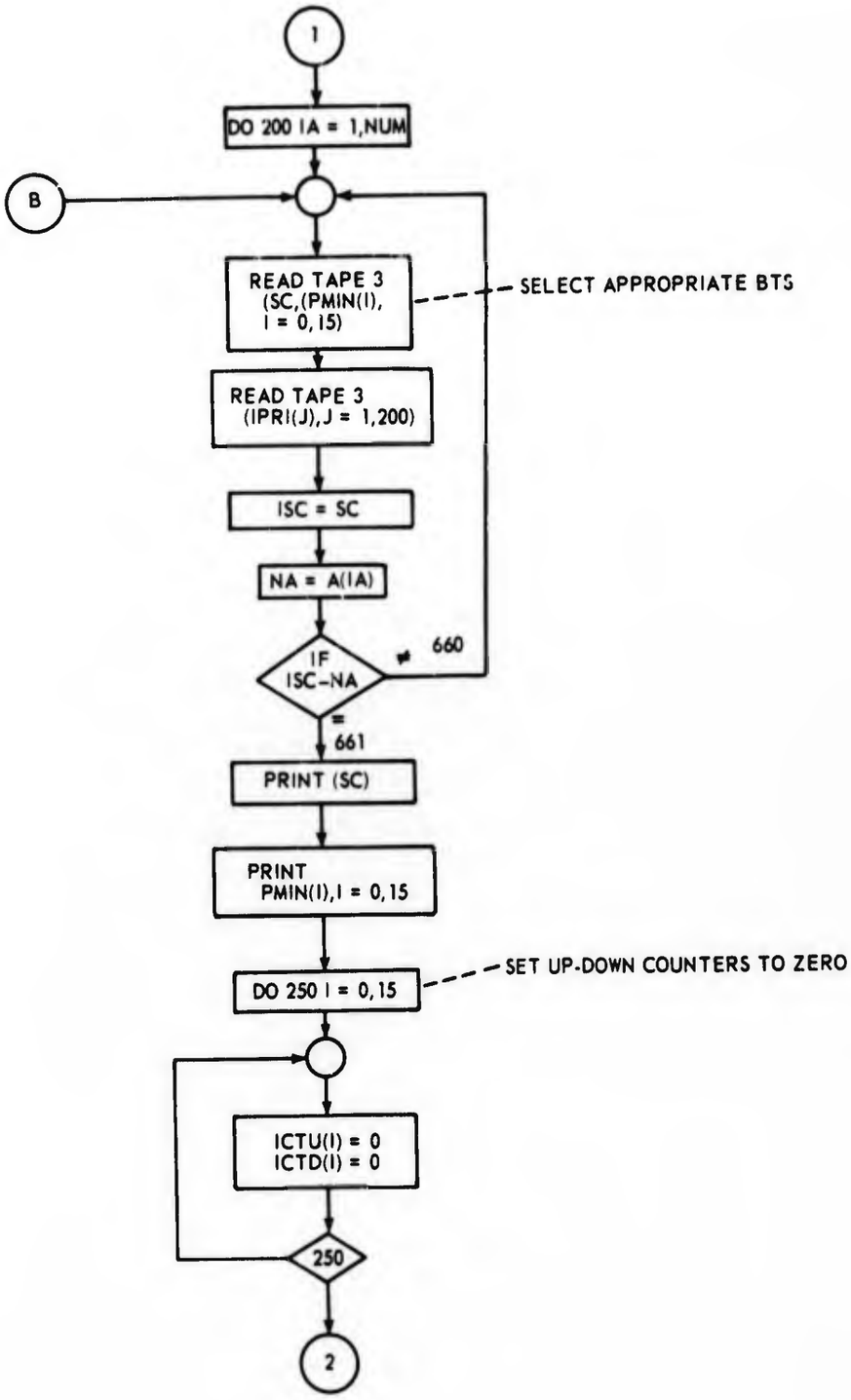
Partial BTS Sequence from 5th Ensemble

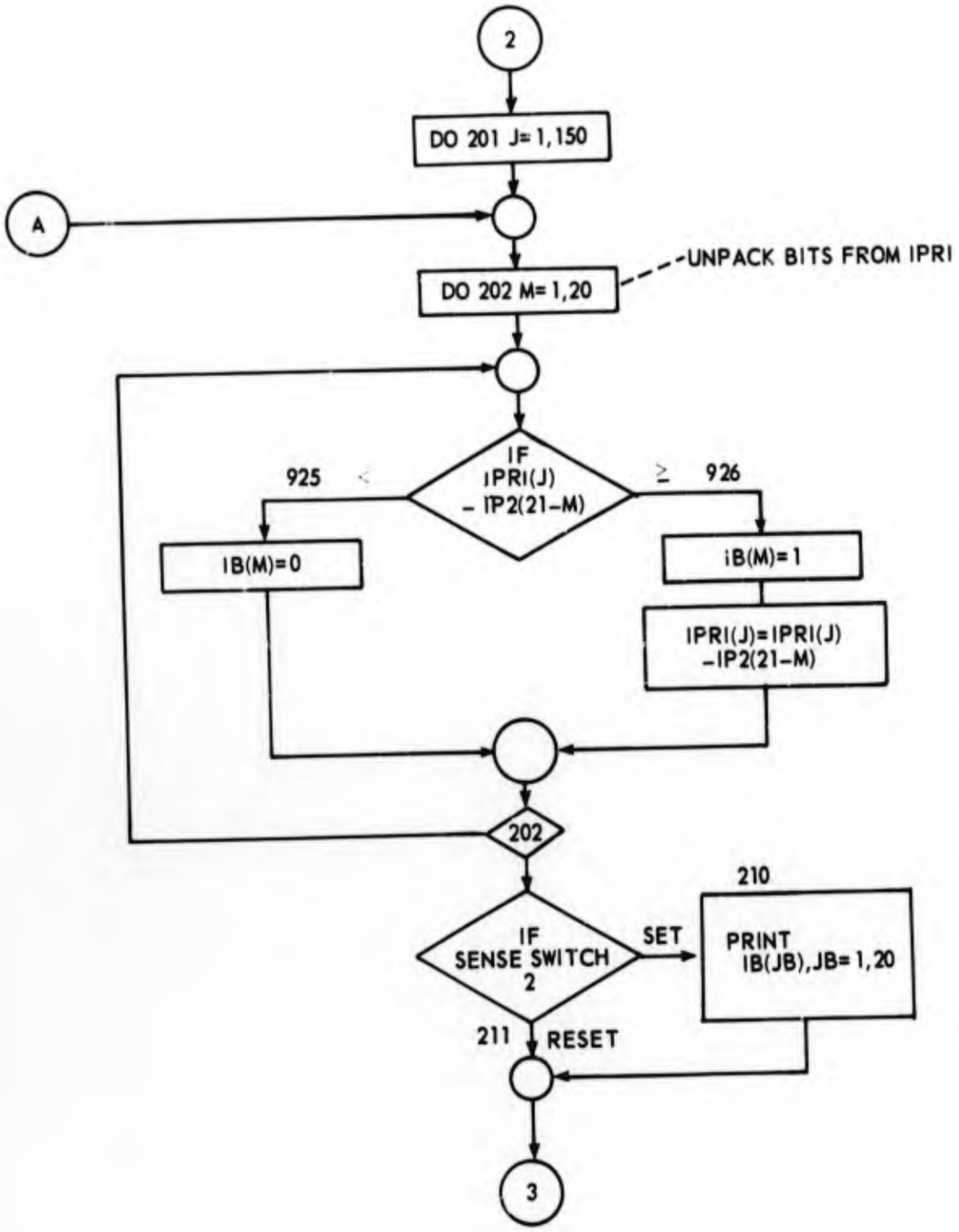
Member Representing Score of 1

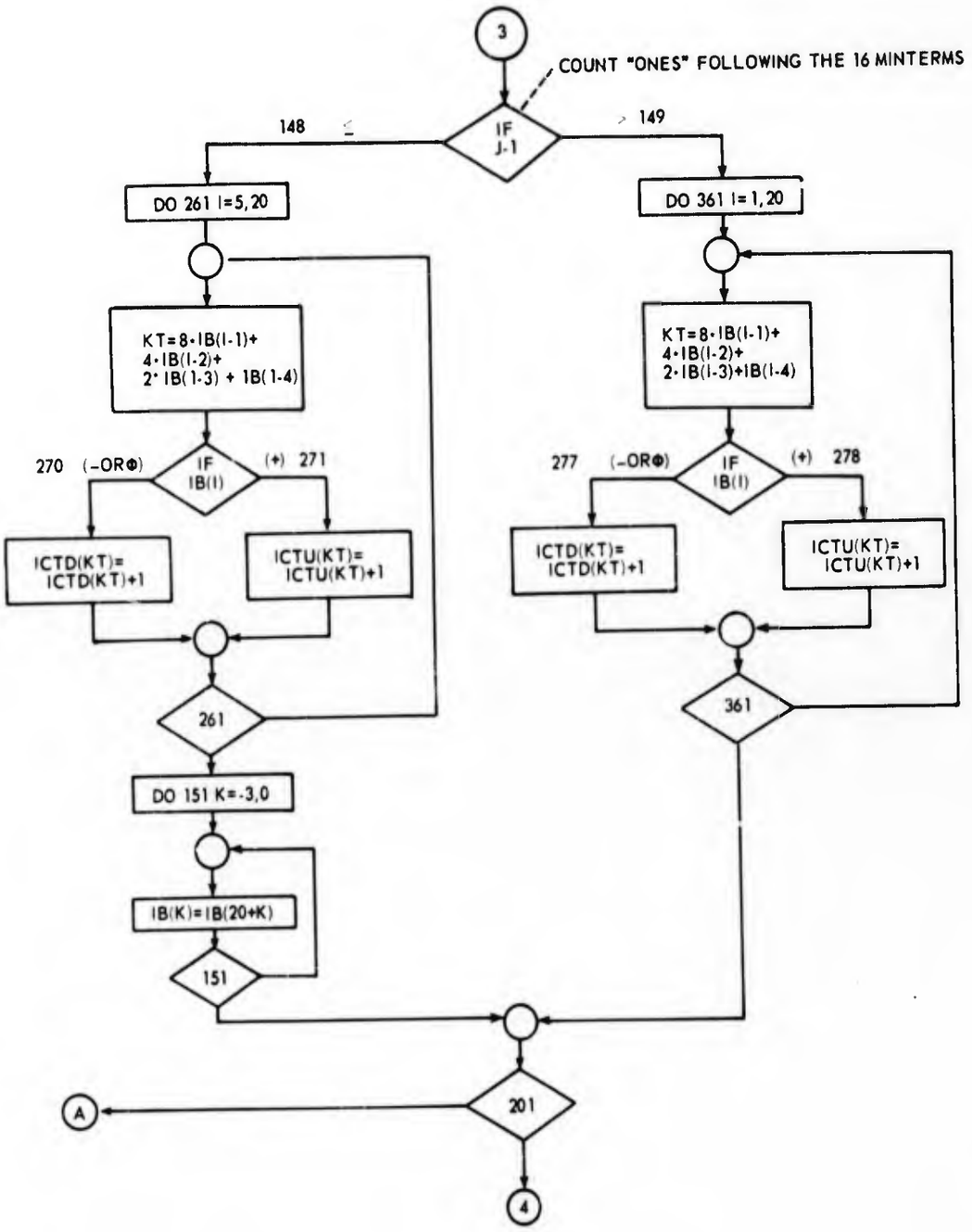
APPENDIX 20

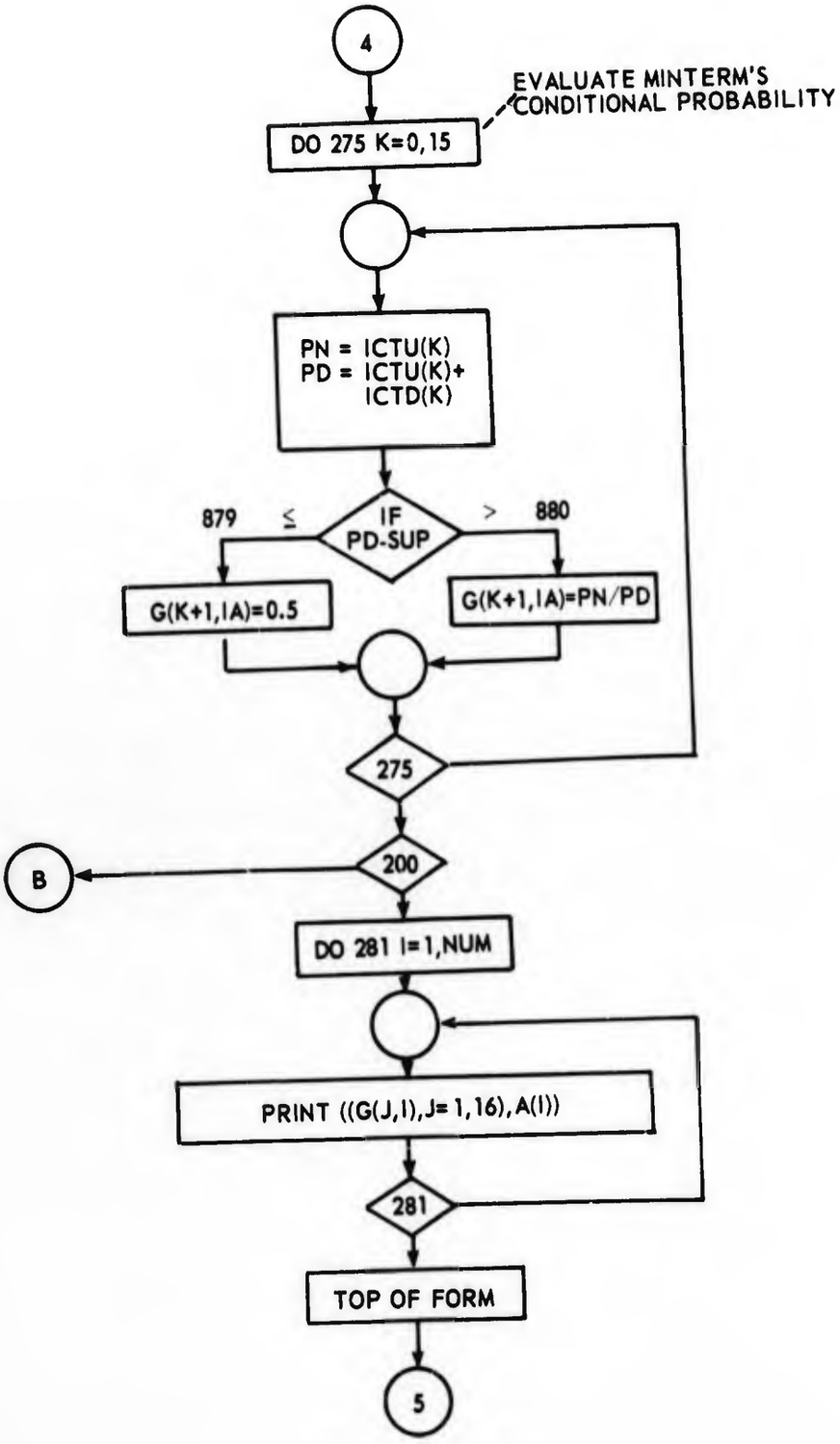
PROGRAM FOR RELATIVE PERFORMANCE EVALUATION BASED UPON LOGICAL STRUCTURE OF BTS SEQUENCES

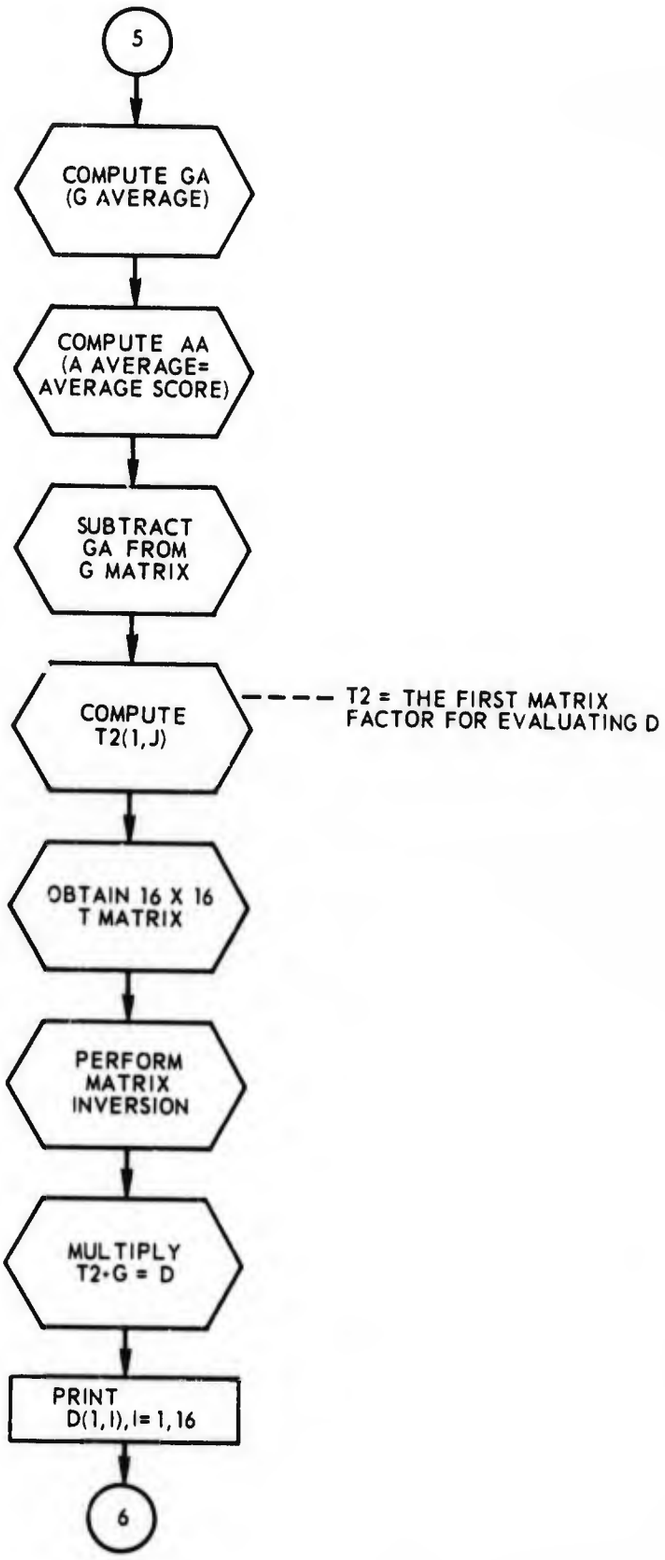

START
DIMENSION: D(16,16), IB(-3/20),PMIN(0,15),IPRI(200), IP2(21),ICTU(0/15),ICTD(0/15) G(16,50),A(50),GA(50),T2(1,16)
IENS = 1
401
NUM = NUMBER OF BTS USED TO TRAIN REGRESSION MODEL
READ NUM,SUP
ANUM = NUM
DO 34,I = 1,NUM
READ NUM SCORE VALUES, STARTING WITH HIGHEST VALUE FIRST
READ (A(I))
34
READ (IP2(I), I = 1,21)
BIT UNPACKING CONSTANTS
REWIND 3
PAUSE
1

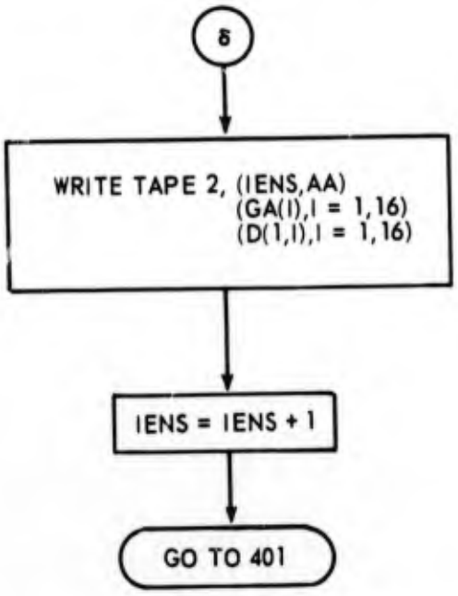

1
DO 200 IA = 1,NUM
B
READ TAPE 3
(SC,(PMIN(I),
I = 0,15)
SELECT APPROPRIATE BTS
READ TAPE 3
(IPRI(J),J = 1,200)
ISC = SC
NA = A(IA)
IF
ISC-NA
≠ 660
=
661
PRINT (SC)
PRINT
PMIN(I),I = 0,15
DO 250 I = 0,15
SET UP-DOWN COUNTERS TO ZERO
ICTU(I) = 0
ICTD(I) = 0
250
2


2
DO 201 J=1,150
A
DO 202 M=1,20
UNPACK BITS FROM IPRI
IF
IPRI(J)
- IP2(21-M)
925
<
≥
926
IB(M)=0
IB(M)=1
IPRI(J)=IPRI(J)
-IP2(21-M)
202
210
IF
SENSE SWITCH
2
SET
PRINT
IB(JB),JB=1,20
211
RESET
3


3
COUNT "ONES" FOLLOWING THE 16 MINTERMS
IF J-1
148 ≤
> 149
DO 261 I=5,20
DO 361 I=1,20
KT=8·IB(I-1)+ 4·IB(I-2)+ 2·IB(I-3) + IB(I-4)
KT=8·IB(I-1)+ 4·IB(I-2)+ 2·IB(I-3)+IB(I-4)
270 (-OR0)
IF IB(I)
(+) 271
277 (-OR0)
IF IB(I)
(+) 278
ICTD(KT)= ICTD(KT)+1
ICTU(KT)= ICTU(KT)+1
ICTD(KT)= ICTD(KT)+1
ICTU(KT)= ICTU(KT)+1
261
361
DO 151 K=-3,0
IB(K)=IB(20+K)
151
201
A
4


4
EVALUATE MINTERM'S CONDITIONAL PROBABILITY
DO 275 K=0,15
PN = ICTU(K)
PD = ICTU(K)+ ICTD(K)
879 ≤
IF PD-SUP
> 880
G(K+1,IA)=0.5
G(K+1,IA)=PN/PD
275
200
B
DO 281 I=1,NUM
PRINT ((G(J,I),J=1,16),A(I))
281
TOP OF FORM
5


5
COMPUTE GA (G AVERAGE)
COMPUTE AA (A AVERAGE= AVERAGE SCORE)
SUBTRACT GA FROM G MATRIX
COMPUTE T2(1,J)
T2 = THE FIRST MATRIX FACTOR FOR EVALUATING D
OBTAIN 16 X 16 T MATRIX
PERFORM MATRIX INVERSION
MULTIPLY T2•G = D
PRINT D(1,I), I= 1,16
6


8
WRITE TAPE 2, (IENS,AA)
(GA(I),I = 1,16)
(D(1,I),I = 1,16)
IENS = IENS + 1
GO TO 401

```
      1  *     ARS - 68 - JOB 8054 - PART 2
      2  C     RELATIVE PERFORMANCE EVALUATION BASED UPON EXAMINATION OF
      3  C     MINTERM PROBABILITIES IN TRAINING SEQUENCES.
      4        DIMENSION IB(-3/20),PMIN(0/15),IPRI(200), IP2(21)
      5       1,ICTU(0/15), ICTD(0/15), G(16,50), A(50), GA(50),
      6       2 D(16,16)     ,  T2(1,16)
      7        IENS=1
      8  C     IENS COUNTS  THE NUMBER OF ENSEMBLES  FOR MAG TAPE OUTPUT
      9    401 READ 32, NUM
     10     32 FORMAT (I3)
     11        ANUM = NUM
     12        READ 9, SUP
     13      9 FORMAT (F5.2)
     14  C     KUP SPECIFIES NUMBER OF MINTERMS NECESSARY IN A BTS TO ESTABLISH
     15  C     A CONDITIONAL PROBABILITY GREATER THAN 0.5
     16        DO 34, I=1,NUM
     17        READ 999, (A(I))
     18    999 FORMAT (F6.2)
     19     34 CONTINUE
     20  C     NUM = NUMBER OF SCORING SEQUENCES TO BE USED IN REGRESSION
     21  C     ANALYSIS.
     22  C     THE DESIRED SCORES TO BE READ FROM MAG TAPE HAVE BEEN SPECIFIED IN
     23  C     MATRIX A(I).
     24        READ 2, (IP2(I), I=1,21)
     25      2 FORMAT (I7)
     26        REWIND 3
     27        PAUSE
     28  C     PART A  -  READ TAPE 3 AND DETERMINE NUMBER PROBABILITIES.
     29  C     USE STRAIGHTFORWARD LINEAR PREDICTION WITH 4 BIT PREDICTION
     30  C     (16 MINTERMS).
     31  C     USE SCORES STARTING WITH 100 AND DECREASING IN UNITS OF 5 UNTIL
     32  C     16 HAVE BEEN SELECTED.
     33        DO 200 IA=1,NUM
     34  C     NUM = NUMBER OF BTS IN POPULATION.
     35    660 READ TAPE 3, (SC, (PMIN(I), I=0,15))
     36        READ TAPE 3, (IPRI(J), J=1,200)
     37        ISC = SC
     38        NA = A(IA)
     39        IF (ISC - NA) 660,661,660
     40    661 PRINT 122, (SC)
     41    122 FORMAT (20X,F7.2)
     42        PRINT 123, (PMIN(I), I=0,15)
     43    123 FORMAT (5X,16(1X,F6.3))
     44        DO 250, I=0,15
     45        ICTU(I) = 0
     46        ICTD(I) = 0
     47    250 CONTINUE
     48        DO 201 J=1,150
     49        DO 202 M=1,20
     50        IF (IPRI(J)-IP2(21-M)) 925,926,926
     51    925 IB(M)=0
     52        GO TO 202
     53    926 IB(M)=1
```

```
      54          IPRI(J)=IPRI(J)-IP2(21-M)
      55      202 CONTINUE
      56          IF (SENSE SWITCH 2) 210,211
      57      210 PRINT 125, (IB(JB), JB=1,20)
      58      125 FORMAT (20X,20(I1))
      59  C       THIS PRINTOUT ALLOWS FOR COMPARISON TO INSURE THAT DATA WAS
      60  C       TRANSLATED BETWEEN TAPES APPROPRIATELY.
      61  C       NOW DETERMINE PROBABILITIES G(I,J) .
      62      211 IF  (J - 1) 148,148,149
      63      148 DO 261 I=5,20
      64          KT = 8*IB(I-1) + 4*IB(I-2) + 2*IB(I-3) + IB(I-4)
      65          IF (IB(I )) 270,270,271
      66      270 ICTD(KT) = ICTD(KT)+1
      67          GO TO 261
      68      271 ICTU(KT)= ICTU(KT) + 1
      69      261 CONTINUE
      70          DO 151 K=-3,0
      71      151 IB(K) = IB(20+K)
      72          GO TO 201
      73      149 DO  361 I=1,20
      74          KT = 8*IB(I-1) + 4*IB(I-2) + 2*IB(I-3) + IB(I-4)
      75          IF (IB(I)) 277,277,278
      76      277 ICTD(KT) = ICTD(KT) + 1
      77          GO TO 361
      78      278 ICTU(KT) = ICTU(KT) + 1
      79      361 CONTINUE
      80      201 CONTINUE
      81          DO 275 K=0,15
      82          PN = ICTU(K)
      83          PD  = ICTU(K) + ICTD(K)
      84          IF (PD - SUP) 879,879,880
      85      879 G(K+1,IA) = 0.5
      86          GO TO 275
      87      880 G(K+1,IA)=PN/PD
      88      275 CONTINUE
      89      200 CONTINUE
      90  C       PRINT THE TRANSPOSE OF G. IT WILL BE OF ORDER 16 X NUM.
      91          DO 281 I=1,NUM
      92          PRINT 280, (G(J,I), J=1,16), A(I)
      93      280 FORMAT (5X,16(1X,F5.3),3X,F6.1,/)
      94      281 CONTINUE
      95          PRINT 127
      96  C       COMPUTE GA (G AVERAGE)
      97          DO 675 J=1,16
      98          CT = 0.0
      99          DO 676 I=1,NUM
     100          CT     = CT + G(J,I)
     101      676 CONTINUE
     102          GA(J) =   CT /ANUM
     103      675 CONTINUE
     104  C       COMPUTE AA (A AVERAGE = AVERAGE SCORE)
     105          CT = 0.0
     106          DO 677 I=1,NUM
     107          CT = CT + A(I)
```

```
  108    677 CONTINUE
  109        AA = CT/ANUM
  110  C     SUBTRACT GA FROM G MATRIX
  111        DO 678 I=1,16
  112        DO 679 J=1,NUM
  113        G(I,J) = G(I,J) - GA(I)
  114    679 CONTINUE
  115    678 CONTINUE
  116        DO 684 I=1,16
  117    684 T2(1,I) = 0.0
  118        DO 685 K=1,NUM
  119        DO 686 J=1,16
  120        T2(1,J) = (A(K) - AA)*G(J,K) + T2(1,J)
  121    686 CONTINUE
  122    685 CONTINUE
  123  C     T2, THE FIRST MATRIX FACTOR FOR EVALUATING D, HAS BEEN FOUND.
  124  C     OBTAIN 16 X 16 T MATRIX.
  125        DO 680 I=1,16
  126        DO 680 J=1,16
  127        D(I,J) = 0.0
  128    680 CONTINUE
  129        DO 681 K=1,NUM
  130        DO 682 J=1,16
  131        DO 683 I=1,16
  132        D(I,J) = D(I,J) + G(I,K)*G(J,K)
  133    683 CONTINUE
  134    682 CONTINUE
  135    681 CONTINUE
  136        DO 687 I=1,16
  137        DO 687 J=1,16
  138    687 G(I,J) = 0.0
  139  C     PART B - DETERMINE COEFFICIENTS.
  140  C     PERFORM MATRIX INVERSION
  141  C       MATRIX INVERSION BY ELIMINATION WITH PARTIAL PIVOTING -
  142  C     ADAPTED FROM MC CALLA.
  143  C     DESCRIPTION OF PARAMETERS
  144  C     D - INPUT MATRIX
  145  C     G - INVERSE MATRIX OF D
  146  C     DEL - RESULTANT DETERMINENT
  147  C     N - ORDER OF MATRIX A
  148  C     EPS - ERROR BOUND FOR SINGULARITY
  149  C     ST - SINGULARITY FLAG
  150        N = 16
  151        EPS=0.000000000001
  152  C
  153  C     CONSTRUCT IDENTITY MATRIX G(I,J) = I
  154        DO 6 I=1,N
  155        DO 5 J=1,N
  156        IF (I-J) 4,3,4
  157      3 G(I,J) = 1.0
  158        GO TO 5
  159      4 G(I,J) = 0.0
  160      5 CONTINUE
  161      6 CONTINUE
```

```
*  162  C     LOCATE MAXIMUM MAGNITUDE D[I,K] ON OR BELOW MAIN DIAGONAL
*  163        DEL = 1.0
*  164        DO 45 K=1,N
*  165        IF [K-N] 12,30,30
*  166     12 IMAX = K
*  167        AMAX = ABS[D[K,K]]
*  168        KP1 = K+1
*  169        DO 20 I=KP1,N
*  170        IF [AMAX - ABS[D[I,K]]] 15,20,20
*  171     15 IMAX = I
*  172        AMAX = ABS[D[K,K]]
*  173     20 CONTINUE
*  174  C     INTERCHANGE ROWS IMAX AND K IF IMAX NOT EQUAL TO K
*  175        IF [IMAX - K] 25,30,25
*  176     25 DO 29 J=1,N
*  177        ATMP = D[IMAX,J]
*  178        D[IMAX,J]=D[K,J]
*  179        D[K,J] = ATMP
*  180        BTMP = G[IMAX,J]
*  181        G[IMAX,J] = G[K,J]
*  182     29 G[K,J] = BTMP
*  183        DEL = -DEL
*  184     30 CONTINUE
*  185  C     TEST FOR SINGULAR MATRIX
*  186        IF [ABS[D[K,K]] - EPS] 93,93,35
*  187     35 DEL = D[K,K]*DEL
*  188  C     DIVIDE PIVOT ROW BY ITS MAIN DIAGONAL ELEMENT
*  189        DIV = D[K,K]
*  190        DO 38 J=1,N
*  191        D[K,J]=D[K,J]/DIV
*  192     38 G[K,J]=G[K,J]/DIV
*  193  C     REPLACE EACH ROW BY LINEAR COMBINATION WITH PIVOT ROW
*  194        DO 43 I=1,N
*  195        AMULT=D[I,K]
*  196        IF [I-K] 39,43,39
*  197     39 DO 42 J=1,N
*  198        D[I,J] = D[I,J] - AMULT*D[K,J]
*  199     42 G[I,J] = G[I,J] - AMULT*G[K,J]
*  200     43 CONTINUE
*  201     45 CONTINUE
*  202        ST = 0.
*  203        GO TO 94
*  204     93 ST = 1.0
*  205  C
*  206     94 IF [ST-0.5] 796,305,305
*  207    305 PRINT 310
*  208    310 FORMAT [ 10X,*SINGULAR MATRIX *]
*  209        GO TO 320
*  210    306 PRINT 213
*  211    213 FORMAT [////,10X,*ELEMENTS OF D INVERSE*,/,10X, *[ON A ROW BY ROW
*  212       1BASIS]*, /]
*  213        DO 340, I=1,N
*  214        PRINT 311, [ G[I,J], J=1,N]
*  215    311 FORMAT [4X,E15.6]
```

```
*   216          PRINT 997
*   217      997 FORMAT (6 ?,/)
*   218      340 CONTINUE
*   219      796 PRINT 380
*   220      380 FORMAT (//, 5X,$DETERMINENT$,/)
*   221          PRINT 312, (DEL)
*   222      312 FORMAT (4X,E15.6)
*   223      320 CONTINUE
*   224  C       MATRIX INVERSION COMPLETE
*   225  C       G, THE SECOND MATRIX FACTOR FOR EVALUATION D, HAS BEEN FOUND.
*   226  C       MULTIPLY T2*G = D
*   227          DO 283 I=1,16
*   228      283 D(1,I) =0.0
*   229          DO 285 K=1,16
*   230          DO 285 J=1,16
*   231      285 D(1,K) = T2(1,J)*G(K,J) + D(1,K)
*   232  C         D, THE DESIRED VECTOR, HAS BEEN COMPUTED.
*   233          PRINT 284, (D(1,I), I=1,16)
*   234      284 FORMAT(15X,F10.3)
*   235          PRINT 127
*   236      127 FORMAT (1H1)
*   237          WRITE TAPE 2, (IENS,AA)
*   238          WRITE TAPE 2, (GA(I), I=1,16)
*   239          WRITE TAPE 2, (D(1,I), I=1,16)
*   240          IENS = IENS + 1
*   241          GO TO 401
*   242          END
```

PROGRAM ALLOCATION

00015	IB	00045	PMIN	00105	IPRI	00415	IP2
00442	ICTU	00462	ICTD	00502	G	03602	A
03746	GA	04112	D	05112	T2	05152	IENS
05153	NUM	05154	I	05155	IA	05156	J
05157	ISC	05160	NA	05161	M	05162	JB
05163	KT	05164	K	05165	N	05166	IMAX
05167	KP1	05170	ANUM	05172	SUP	05174	SC
05176	PN	05200	PD	05202	CT	05204	AA
05206	EPS	05210	DEL	05212	AMAX	05214	ATMP
05216	BTMP	05220	DIV	05222	AMULT	05224	ST

SUBPROGRAMS REQUIRED

ABS
THE END

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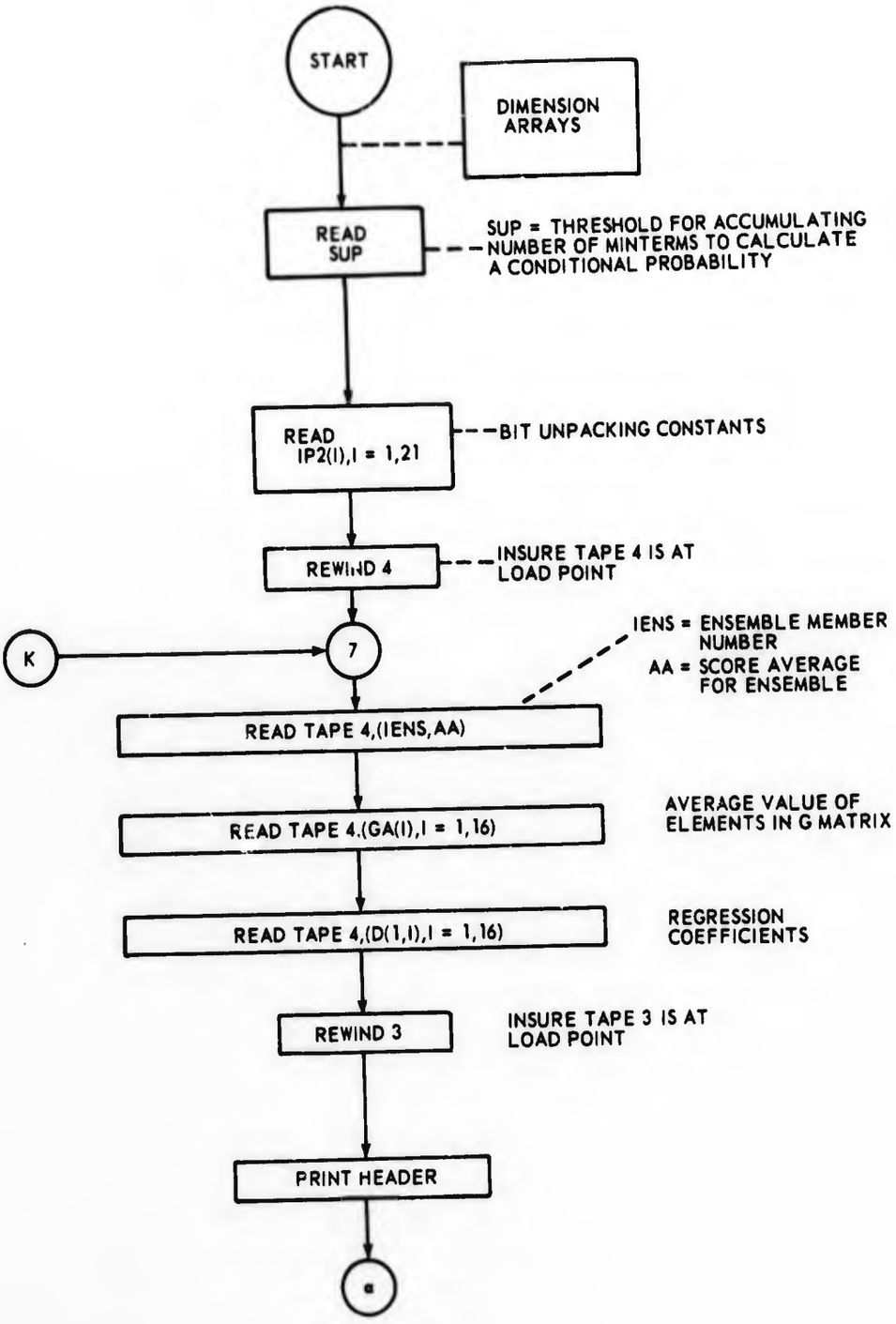
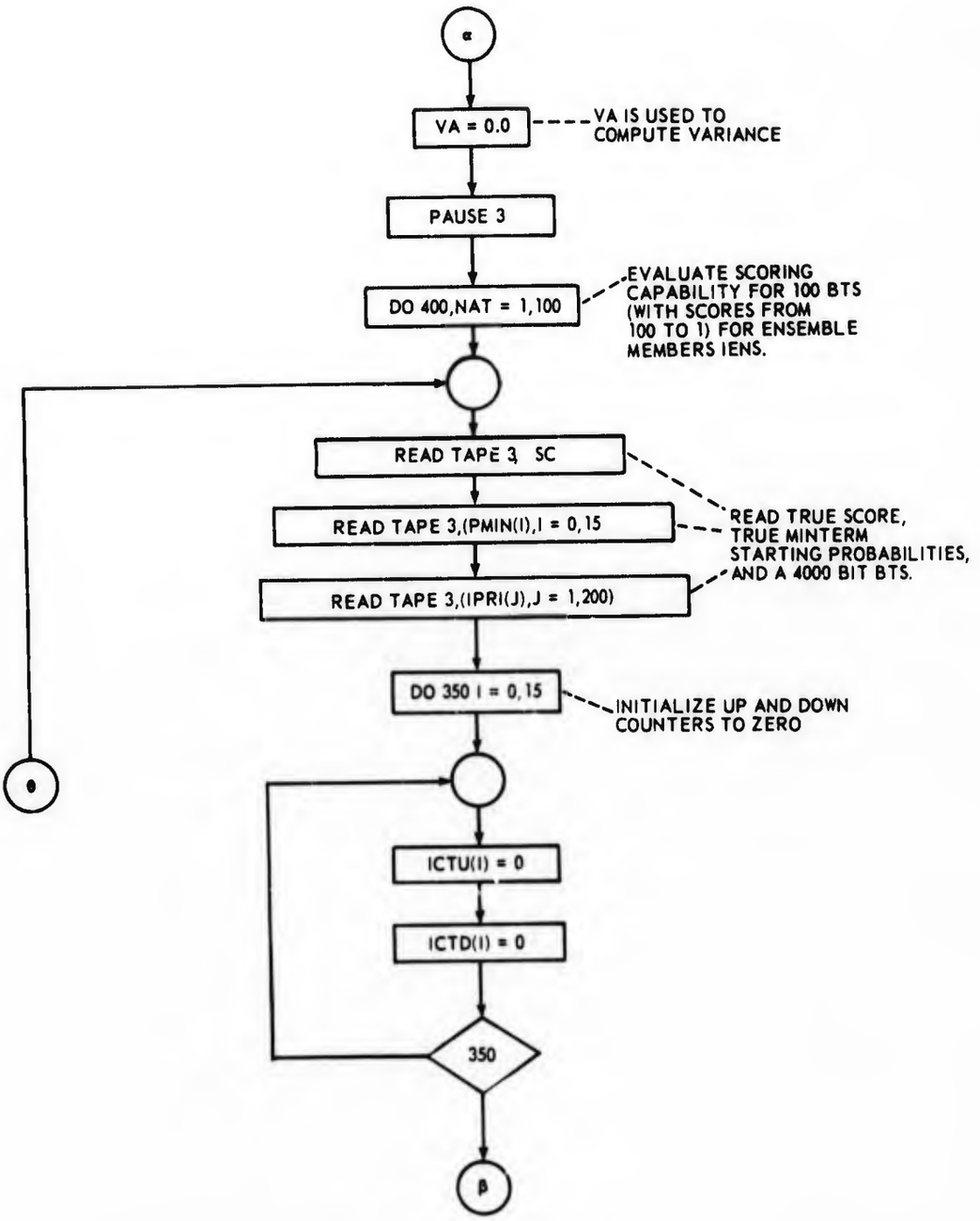
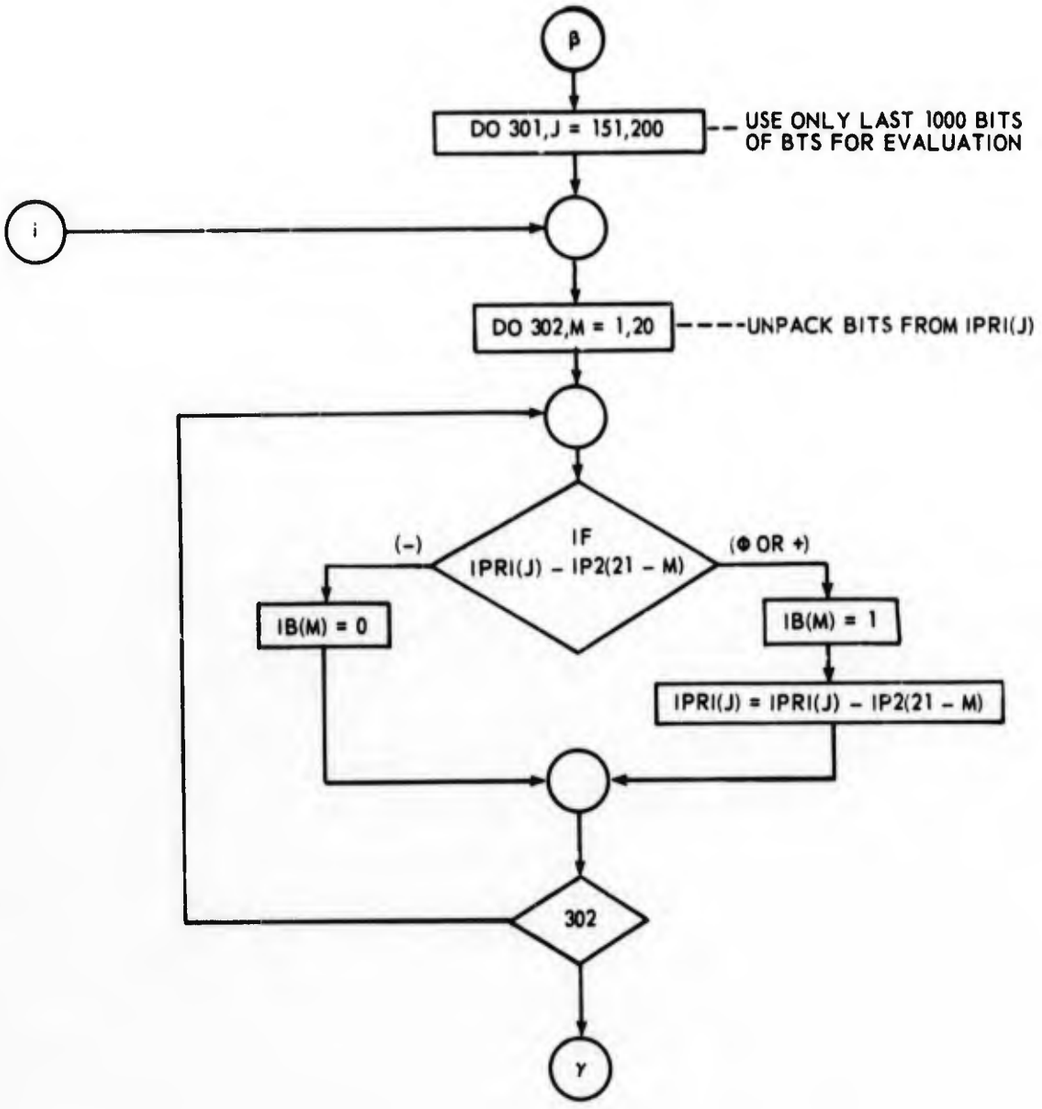
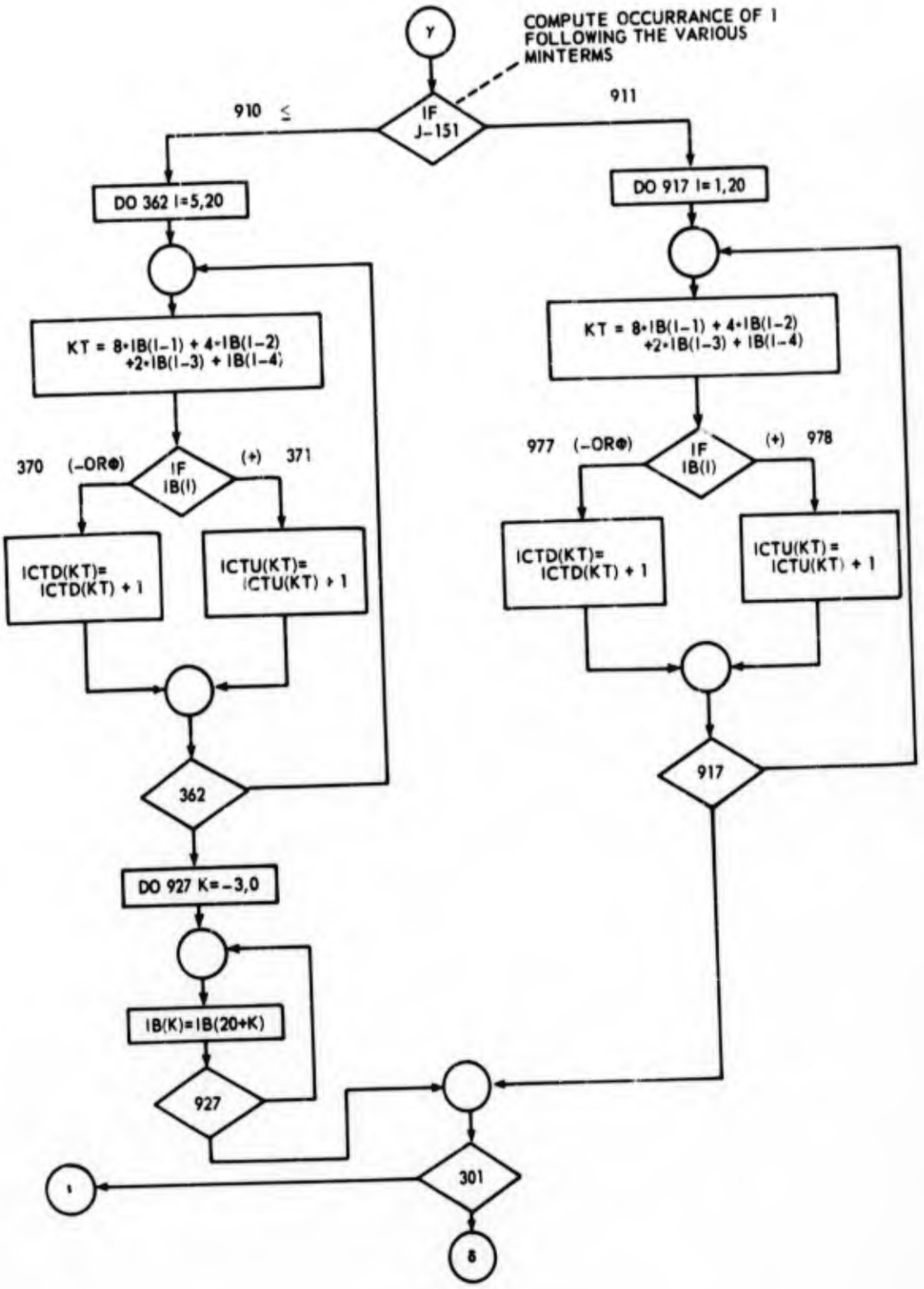
APPENDIX 21

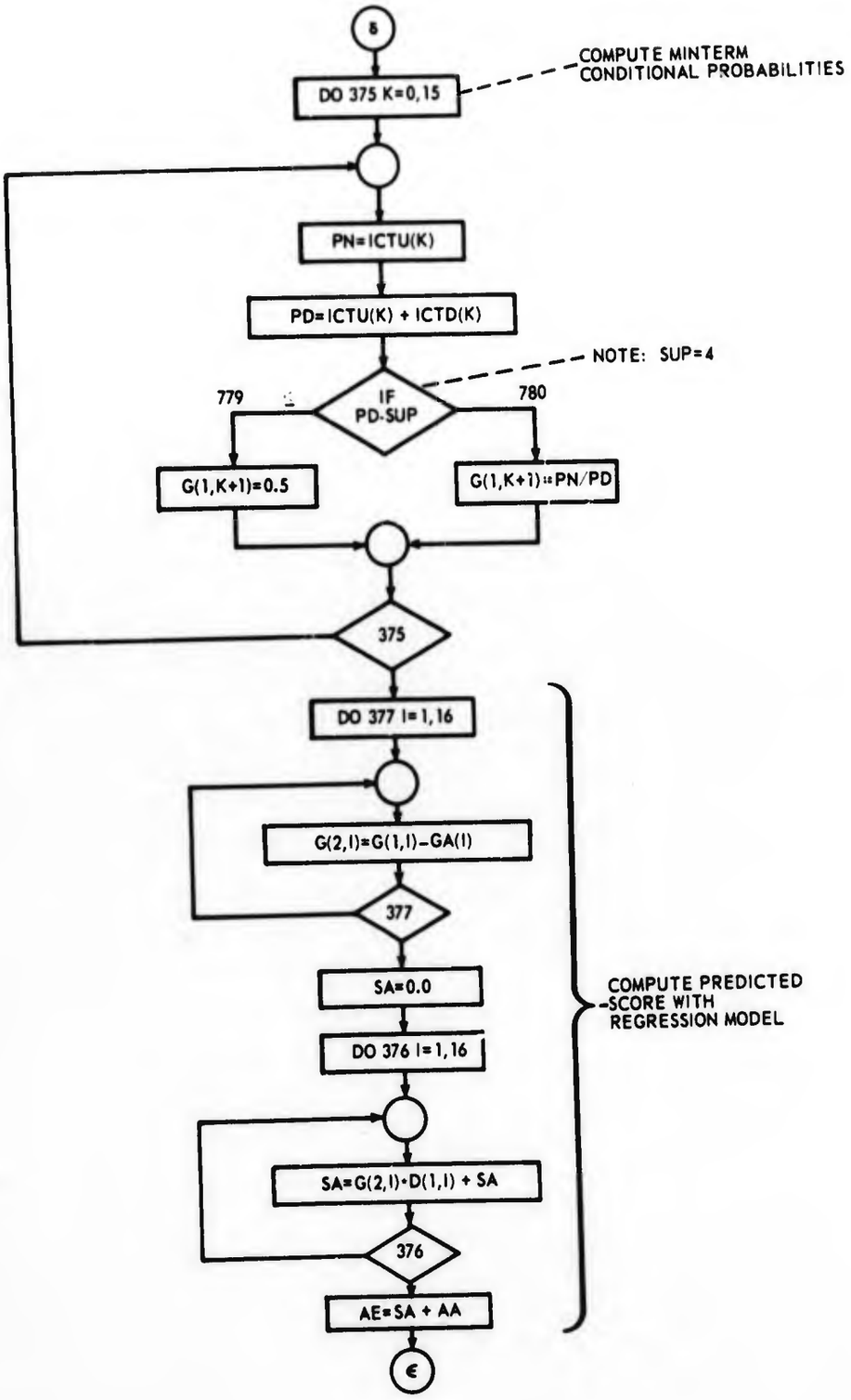
PROGRAM FOR EVALUATION OF SCORING CAPABILITY OF LINEAR REGRESSION MODEL

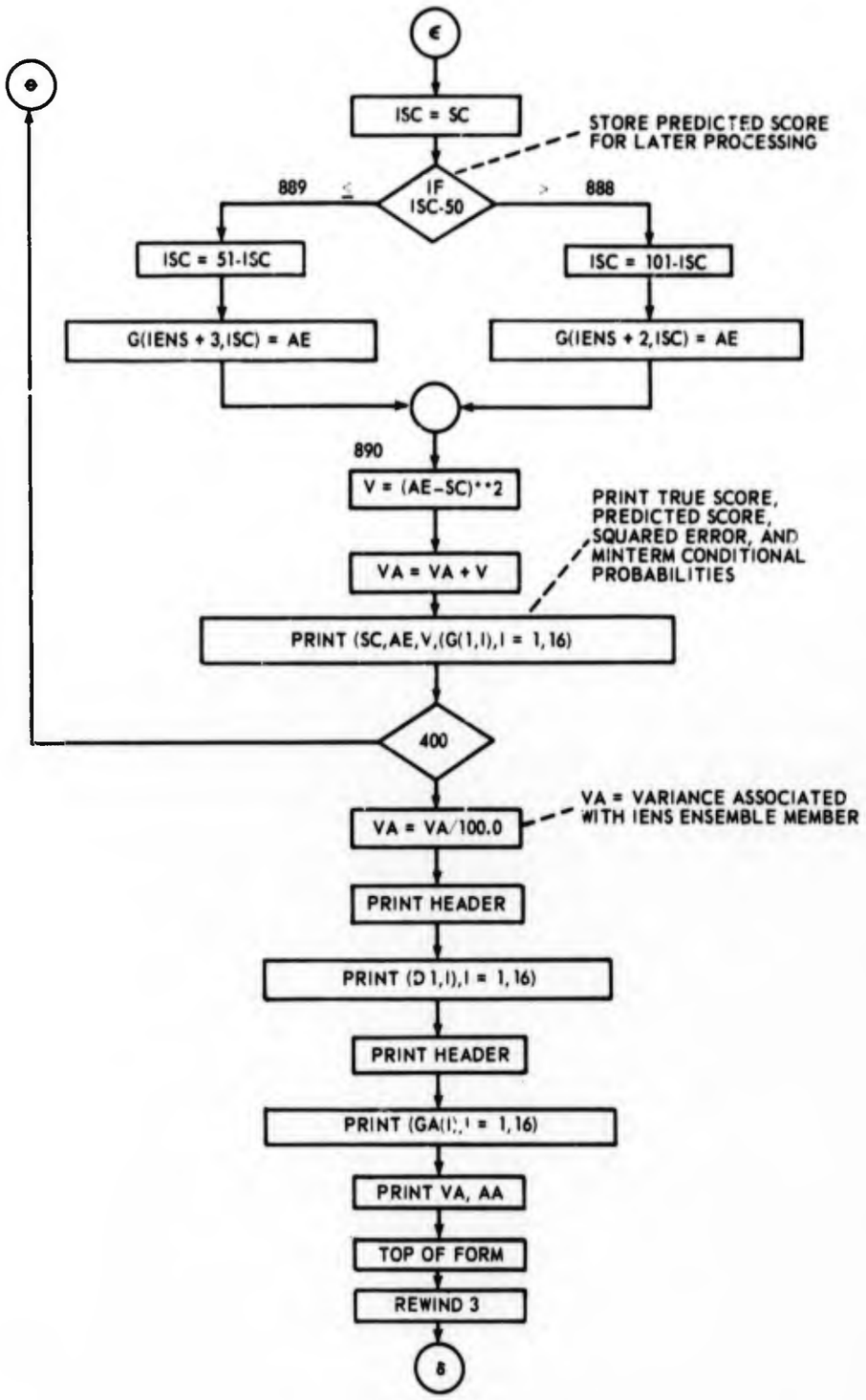

START
DIMENSION ARRAYS
READ SUP
SUP = THRESHOLD FOR ACCUMULATING NUMBER OF MINTERMS TO CALCULATE A CONDITIONAL PROBABILITY
READ IP2(I),I = 1,21
BIT UNPACKING CONSTANTS
REWIND 4
INSURE TAPE 4 IS AT LOAD POINT
K
7
IENS = ENSEMBLE MEMBER NUMBER
AA = SCORE AVERAGE FOR ENSEMBLE
READ TAPE 4,(IENS,AA)
READ TAPE 4,(GA(I),I = 1,16)
AVERAGE VALUE OF ELEMENTS IN G MATRIX
READ TAPE 4,(D(1,I),I = 1,16)
REGRESSION COEFFICIENTS
REWIND 3
INSURE TAPE 3 IS AT LOAD POINT
PRINT HEADER

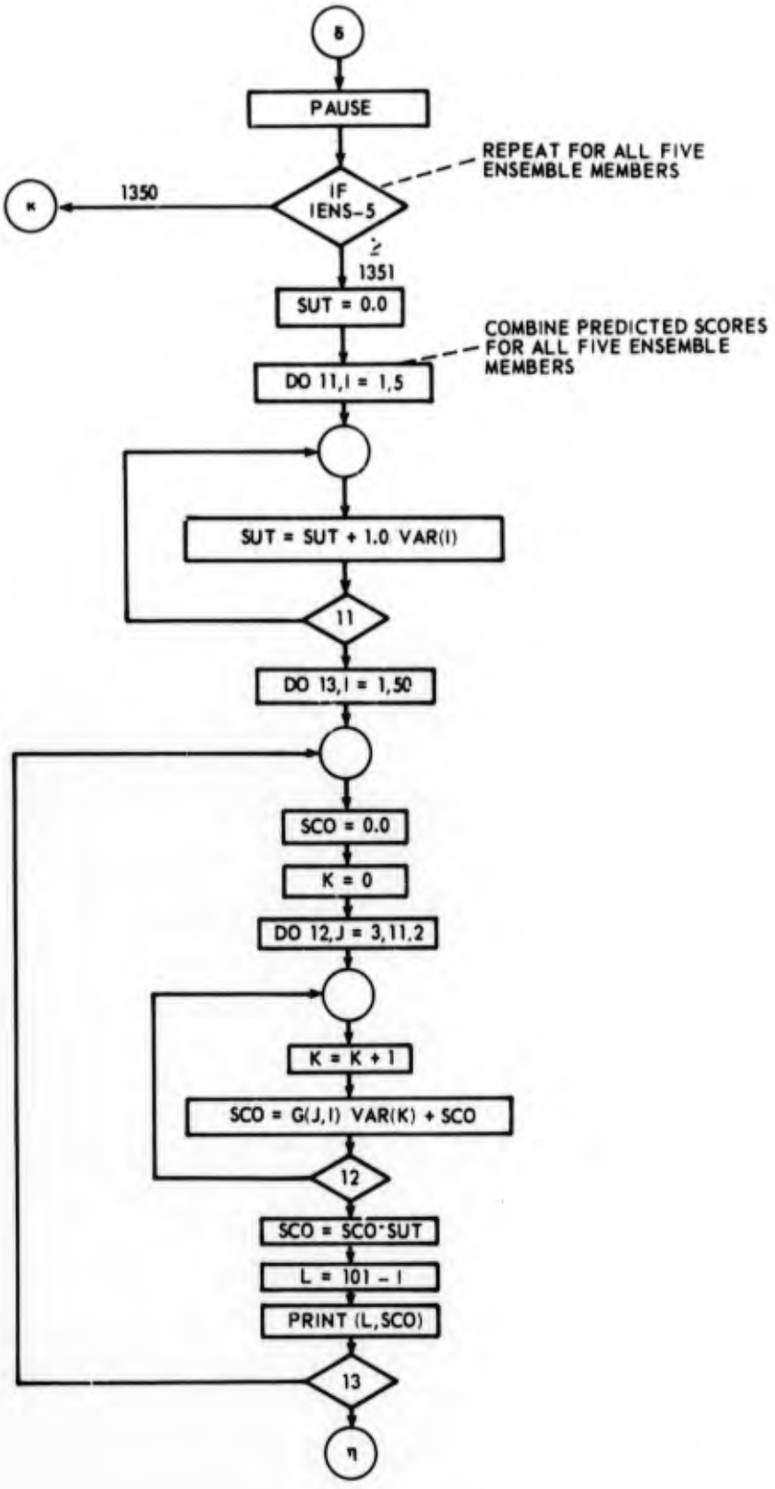

α
VA = 0.0
VA IS USED TO COMPUTE VARIANCE
PAUSE 3
DO 400,NAT = 1,100
EVALUATE SCORING CAPABILITY FOR 100 BTS (WITH SCORES FROM 100 TO 1) FOR ENSEMBLE MEMBERS IENS.
READ TAPE 3, SC
READ TAPE 3,(PMIN(I),I = 0,15
READ TAPE 3,(IPRI(J),J = 1,200)
READ TRUE SCORE, TRUE MINTERM STARTING PROBABILITIES, AND A 4000 BIT BTS.
DO 350 I = 0,15
INITIALIZE UP AND DOWN COUNTERS TO ZERO
ICTU(I) = 0
ICTD(I) = 0
350
β

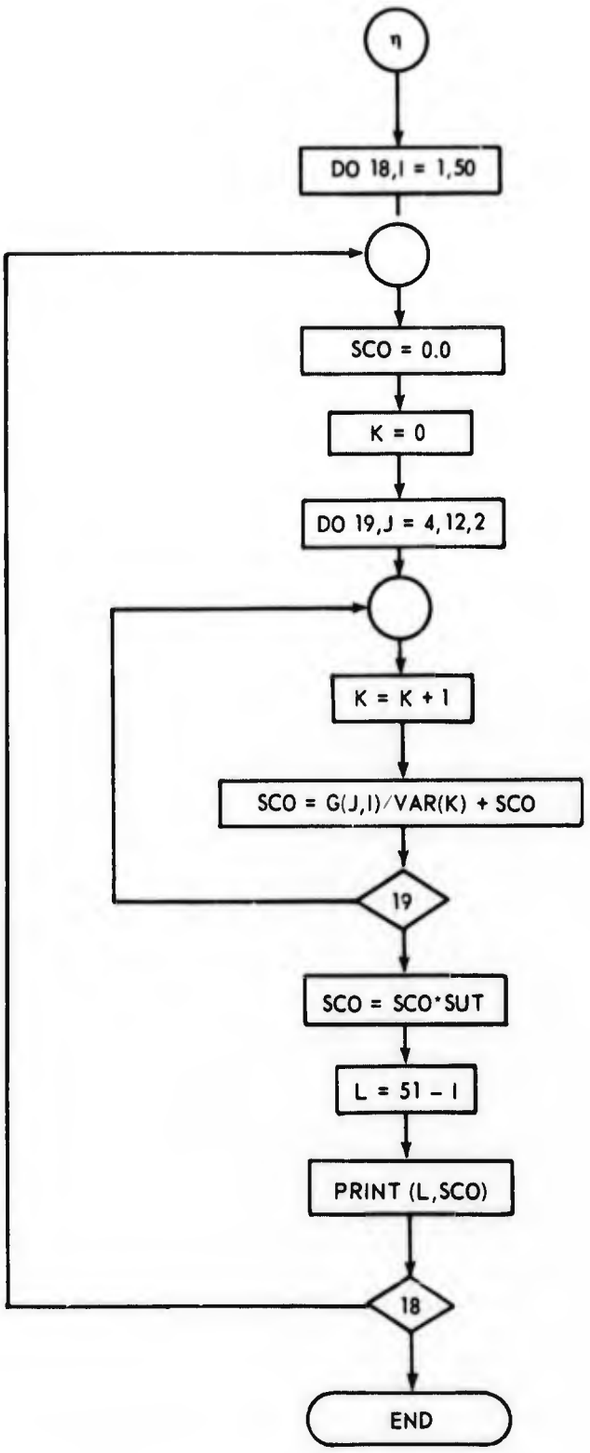

β
DO 301,J = 151,200
USE ONLY LAST 1000 BITS OF BTS FOR EVALUATION
i
DO 302,M = 1,20
UNPACK BITS FROM IPRI(J)
IF IPRI(J) – IP2(21 – M)
(–)
(⊕ OR +)
IB(M) = 0
IB(M) = 1
IPRI(J) = IPRI(J) – IP2(21 – M)
302
γ


Y
COMPUTE OCCURRANCE OF I FOLLOWING THE VARIOUS MINTERMS
IF J-151
910 ≤
911
DO 362 I=5,20
DO 917 I=1,20
KT = 8*IB(I-1) + 4*IB(I-2) +2*IB(I-3) + IB(I-4)
KT = 8*IB(I-1) + 4*IB(I-2) +2*IB(I-3) + IB(I-4)
370 (-OR⊕)
IF IB(I)
(+) 371
977 (-OR⊕)
IF IB(I)
(+) 978
ICTD(KT)= ICTD(KT) + 1
ICTU(KT)= ICTU(KT) + 1
ICTD(KT)= ICTD(KT) + 1
ICTU(KT)= ICTU(KT) + 1
362
917
DO 927 K=-3,0
IB(K)=IB(20+K)
927
301
1
8


5
DO 375 K=0,15
COMPUTE MINTERM CONDITIONAL PROBABILITIES
PN=ICTU(K)
PD=ICTU(K) + ICTD(K)
NOTE: SUP=4
IF PD-SUP
779
780
G(1,K+1)=0.5
G(1,K+1)=PN/PD
375
DO 377 I=1,16
G(2,I)=G(1,I)-GA(I)
377
SA=0.0
DO 376 I=1,16
SA=G(2,I)*D(1,I) + SA
376
AE=SA + AA
COMPUTE PREDICTED SCORE WITH REGRESSION MODEL
E


ISC = SC
STORE PREDICTED SCORE FOR LATER PROCESSING
889 ≤ IF ISC-50 > 888
ISC = 51-ISC
ISC = 101-ISC
G(IENS + 3,ISC) = AE
G(IENS + 2,ISC) = AE
890
V = (AE-SC)**2
PRINT TRUE SCORE, PREDICTED SCORE, SQUARED ERROR, AND MINTERM CONDITIONAL PROBABILITIES
VA = VA + V
PRINT (SC,AE,V,(G(1,I),I = 1,16)
400
VA = VA/100.0
VA = VARIANCE ASSOCIATED WITH IENS ENSEMBLE MEMBER
PRINT HEADER
PRINT (D 1,I),I = 1,16)
PRINT HEADER
PRINT (GA(I),I = 1,16)
PRINT VA, AA
TOP OF FORM
REWIND 3


8
PAUSE
REPEAT FOR ALL FIVE ENSEMBLE MEMBERS
IF IENS-5
1350
K
1351
SUT = 0.0
COMBINE PREDICTED SCORES FOR ALL FIVE ENSEMBLE MEMBERS
DO 11,I = 1,5
SUT = SUT + 1.0 VAR(I)
11
DO 13,I = 1,50
SCO = 0.0
K = 0
DO 12,J = 3,11,2
K = K + 1
SCO = G(J,I) VAR(K) + SCO
12
SCO = SCO*SUT
L = 101 - I
PRINT (L,SCO)
13
η


η
DO 18,I = 1,50
SCO = 0.0
K = 0
DO 19,J = 4,12,2
K = K + 1
SCO = G(J,I)/VAR(K) + SCO
19
SCO = SCO*SUT
L = 51 - I
PRINT (L,SCO)
18
END

```
*     1  *      ARS-8054 - PART 3
*     2  C      EVALUATION OF SCORING CAPABILITY
*     3         DIMENSION IB(-3/20),PMIN(0/15),IPRI(200), IP2(21)
*     4        1,ICTU(0/15), ICTD(0/15), G(16,50), A(50), GA(50),
*     5        2 D(16,16)     ,  T2(1,16)  , VAR(5)
*     6      401 READ 9, SUP
*     7        9 FORMAT (F5.2)
*     8          READ 2, (IP2(I), I=1,21)
*     9        2 FORMAT (I7)
*    10          REWIND 4
*    11        7 READ TAPE 4, (IENS,AA)
*    12          READ TAPE 4, (GA(I), I=1,16)
*    13          READ TAPE 4, (D(1,I), I=1,16)
*    14          REWIND 3
*    15          PRINT 1250
*    16     1250 FORMAT (0                SCORE   VAR                              MINTERM C
*    17         10NDITIONAL PROBABILITIES0)
*    18          PRINT 1251
*    19     1251 FORMAT (0          TR  COM   VAR     1     2     3     4     5     6
*    20         17    8    9    10   11   12   13   14   15   16)
*    21          PRINT 1253
*    22          VA=0.0
*    23  C       VA WILL ACCUMULATE SCORE VARIANCE
*    24  4020    PAUSE 3
*    25          DO 400 NAT=1,100
*    26          READ TAPE 3,(SC,(PMIN(I),I=0,15))
*    27          READ TAPE 3, (IPRI(J), J=1,200)
*    28          DO 350 I=0,15
*    29          ICTU(I) = 0
*    30      350 ICTD(I) = 0
*    31          DO 301, J=151,200
*    32          DO 302 M=1,20
*    33          IF (IPRI(J)-IP2(21-M)) 915,916,916
*    34      915 IB(M)=0
*    35          GO TO 302
*    36      916 IB(M)=1
*    37          IPRI(J)=IPRI(J)-IP2(21-M)
*    38      302 CONTINUE
*    39          IF (J-151) 910,910,911
*    40      910 DO 362 I=5,20
*    41          KT = 8*IB(I-1) + 4*IB(I-2) + 2*IB(I-3) + IB(I-4)
*    42          IF (IB(I )) 370,370,371
*    43      370 ICTD(KT) = ICTD(KT) + 1
*    44          GO TO 362
*    45      371 ICTU(KT) = ICTU(KT) + 1
*    46      362 CONTINUE
*    47          DO 927 K=-3,0
*    48      927 IB(K) = IB(20+K)
*    49          GO TO 301
*    50      911 DO 917 I=1,20
*    51          KT = 8*IB(I-1) + 4*IB(I-2) + 2*IB(I-3) + IB(I-4)
*    52          IF (IB(I)) 977,977,978
*    53      977 ICTD(KT) = ICTD(KT)+ 1
```

```
*    54          GO TO 917
*    55      978 ICTU(KT) = ICTJ(KT) + 1
*    56      917 CONTINUE
*    57      301 CONTINUE
*    58      928 DO 375 K=0,15
*    59          PN = ICTU(K)
*    60          PD = ICTU(K) + ICTD(K)
*    61          IF (PD - SUP) 779,779,780
*    62      779 G(I,K+1)= 0.5
*    63          GO TO 375
*    64      780 G(I,K+1)=PN/PD
*    65      375 CONTINUE
*    66          DO 377 I=1,16
*    67      377 G(2,I)=G(1,I)-SA(I)
*    68          SA=0.0
*    69          DO 376 I=1,16
*    70      376 SA = G(2,I)* D(I,I) + SA
*    71          AE = SA + AA
*    72      C   AE = ESTIMATED SCORE ON THE BASIS OF LINEAR REGRESSION MODEL.
*    73          ISC=SC
*    74          IF (ISC-50) 889,889,888
*    75      888 ISC=101-ISC
*    76          G(IENS+2,ISC) = AE
*    77          GO TO 890
*    78      889 ISC=51-SC
*    79          G(IENS+3,ISC) = AE
*    80      890 V=(AE-SC)**2
*    81          VA=VA+V
*    82          PRINT 1252, (SC,AE,V,(G(I,I), I=1,16))
*    83     1252 FORMAT (9X,F5.1,1X,F5.1,2X,F4.0,1X,16(1X,F4.2))
*    84      400 CONTINUE
*    85          VA = VA/100.0
*    86          VAR(IENS) = VA
*    87      C   VA IS NOW THE ENSEMBLE VARIANCE BASED UPON 100 SCORES.
*    88          PRINT 1253
*    89     1253 FORMAT ($ $,////)
*    90          PRINT 1254
*    91     1254 FORMAT ($                              ELEMENTS OF D(I)  $,/)
*    92          PRINT 1255, (D(I,I), I=1,16)
*    93     1255 FORMAT (20X,F10.4)
*    94          PRINT 1253
*    95          PRINT 1256
*    96     1256 FORMAT ($                                 ELEMENTS OF G AVERAGE$,/)
*    97          PRINT 1257, (GA(I), I=1,16)
*    98     1257 FORMAT (20X,F10.4)
*    99          PRINT 1258, (VAR(IENS),AA)
*   100     1258 FORMAT (10X, $VARIANCE=$,F10.3,10X,$A AVERAGE=$,F10.3)
*   101          PRINT 1259
*   102     1259 FORMAT (1H1)
*   103      C   G(3,I) AND G(4,I) CONTAIN THE COMPUTED SCORES AND WILL SERVE FOR
*   104      C   TOTAL SCORE CALCULATION WHEN ENSEMBLE MEMBERS ARE COMBINED.
*   105          REWIND 3
*   106          PAUSE
*   107          IF (IENS - 5)    7,1351,1351
```

```
*   108   1351 SUT = 0.0
*   109        DO 11 I=1,5
*   110     11 SUT = SUT + 1.0/VAR(I)
*   111  C     SUT IS THE NORMALIZING FACTOR.
*   112        DO 13 I=1,50
*   113        SC0 = 0.0
*   114        K=0
*   115        DO 12 J=3,11,2
*   116        K = K + 1
*   117     12 SC0 = G(J,I)/VAR(K) + SC0
*   118        SC0 = SC0*SUT
*   119        L = 101 - I
*   120        PRINT 14, (L,SC0)
*   121     14 FORMAT (15X,I8,10X,F8.3)
*   122     13 CONTINUE
*   123        DO 18 I=1,50
*   124        SC0=0.0
*   125        K=0
*   126        DO 19 J=4,12,2
*   127        K = K+1
*   128     19 SC0=G(J,I)/VAR(K) +SC0
*   129        SC0=SC0*SUT
*   130        L=51-I
*   131        PRINT 14, (L,SC0)
*   132     18 CONTINUE
*   133        END
```

PROGRAM ALLOCATION

00014	IB	00044	PMIN	00104	IPRI	00414	IP2
00441	ICTU	00461	ICTD	00501	G	03601	A
03745	GA	04111	D	05111	T2	05151	VAR
05163	I	05164	IENS	05165	NAT	05166	J
05167	M	05170	KT	05171	K	05172	ISC
05173	L	05174	SUP	05176	AA	05200	VA
05202	SC	05204	PN	05206	PD	05210	SA
05212	AE	05214	V	05216	SUT	05220	SC0

THE END

APPENDIX 22

SCORE EXTRACTION FROM BTS SEQUENCES USING THE LINEAR REGRESSION MODEL

SCORE TR	SCORE COM	VAR VAR	MIDTERM CONDITIONAL PROBABILITIES 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
100.0	96.1	15.	0.50	0.96	0.07	0.85	0.02	0.00	0.00	0.19	0.96	0.04	0.50	0.42	0.97	0.54	0.01	0.50
99.0	94.3	22.	0.50	0.97	0.00	0.91	0.00	0.00	0.50	0.07	0.99	0.07	0.50	0.30	0.98	0.50	0.17	0.45
98.0	96.8	2.	1.00	0.89	0.05	0.84	0.00	0.00	0.00	0.15	0.94	0.05	0.50	0.48	0.97	0.70	0.00	0.50
97.0	95.1	3.	0.68	0.85	0.17	1.00	0.04	0.50	0.00	0.00	0.88	0.11	0.50	0.50	0.93	0.50	0.00	0.50
96.0	92.7	11.	1.00	0.88	0.04	0.85	0.00	0.00	0.00	0.12	0.95	0.11	0.50	0.59	0.99	0.40	0.02	0.50
95.0	93.2	3.	0.75	0.85	0.20	0.97	0.01	0.50	0.07	0.00	0.87	0.12	0.50	0.50	0.90	0.50	0.01	0.50
94.0	83.9	102.	0.84	0.82	0.07	0.77	0.00	0.50	0.00	0.03	0.86	0.15	0.50	0.50	0.91	0.50	0.02	0.50
93.0	90.1	8.	0.83	0.83	0.20	0.91	0.04	0.20	0.05	0.03	0.87	0.12	0.80	0.50	0.88	0.50	0.02	0.50
92.0	79.8	150.	0.85	0.85	0.06	0.81	0.04	0.50	0.07	0.02	0.86	0.13	1.00	0.50	0.92	0.00	0.03	0.50
91.0	94.5	12.	0.52	0.76	0.07	0.97	0.01	0.50	0.00	0.01	0.81	0.01	0.50	0.50	0.89	0.50	0.02	0.50
90.0	85.7	19.	0.91	0.89	0.05	0.79	0.05	0.00	0.00	0.19	0.91	0.08	1.00	0.52	0.95	0.44	0.03	0.50
89.0	95.3	40.	0.76	0.81	0.21	0.99	0.00	0.00	0.00	0.06	0.86	0.16	0.50	0.00	0.93	0.50	0.03	0.50
88.0	92.1	17.	1.00	0.91	0.13	0.89	0.11	0.00	0.05	0.06	0.94	0.22	0.42	0.00	0.85	0.80	0.10	0.18
87.0	79.6	54.	0.65	0.73	0.15	0.91	0.06	0.50	0.00	0.06	0.72	0.09	1.00	0.00	0.93	0.00	0.04	0.50
86.0	87.0	1.	0.59	0.78	0.14	0.90	0.07	0.00	0.06	0.06	0.73	0.03	0.88	0.17	0.90	0.13	0.08	0.25
85.0	90.4	29.	0.71	0.83	0.28	0.88	0.01	0.20	0.06	0.06	0.85	0.18	0.50	0.17	0.86	0.50	0.08	0.13
84.0	90.5	43.	0.75	0.81	0.20	0.95	0.07	0.00	0.07	0.09	0.83	0.13	0.86	0.22	0.90	0.29	0.13	0.00
83.0	87.1	16.	0.94	0.84	0.16	0.89	0.22	0.00	0.04	0.07	0.85	0.13	0.60	0.14	0.86	0.41	0.06	0.00
82.0	80.0	4.	0.88	0.85	0.17	0.87	0.23	0.09	0.05	0.08	0.88	0.16	0.53	0.25	0.92	0.26	0.04	0.50
81.0	83.1	4.	1.00	0.87	0.07	0.88	0.11	0.23	0.31	0.12	0.93	0.11	0.64	0.31	0.92	0.36	0.19	0.42
80.0	76.1	15.	1.00	0.91	0.09	0.80	0.09	0.10	0.14	0.20	0.86	0.21	0.75	0.24	0.89	0.42	0.11	0.37
79.0	87.7	76.	0.80	0.86	0.21	0.91	0.18	0.14	0.00	0.04	0.86	0.17	0.63	0.50	0.91	0.47	0.09	0.00
78.0	79.9	4.	0.55	0.71	0.18	0.88	0.14	0.22	0.00	0.14	0.75	0.04	0.79	0.10	0.87	0.00	0.07	0.33
77.0	82.8	33.	0.89	0.91	0.13	0.80	0.07	0.08	0.22	0.08	0.90	0.14	0.86	0.29	0.75	0.36	0.20	0.17
76.0	76.5	0.	0.88	0.84	0.07	0.86	0.14	0.24	0.31	0.10	0.85	0.15	0.79	0.42	0.71	0.40	0.19	0.18
75.0	71.6	11.	0.79	0.88	0.20	0.75	0.19	0.06	0.02	0.14	0.83	0.28	0.71	0.00	0.70	0.47	0.16	0.07
74.0	76.7	7.	0.82	0.89	0.19	0.79	0.13	0.00	0.29	0.11	0.85	0.13	0.92	0.35	0.74	0.41	0.21	0.33
73.0	69.1	15.	0.81	0.85	0.23	0.82	0.21	0.17	0.23	0.16	0.67	0.12	0.65	0.12	0.80	0.22	0.19	0.18
72.0	80.3	69.	0.56	0.83	0.12	0.87	0.12	0.13	0.13	0.13	0.73	0.07	0.79	0.00	0.83	0.10	0.08	0.17
71.0	73.3	5.	0.84	0.80	0.24	0.79	0.21	0.03	0.16	0.16	0.75	0.18	0.45	0.00	0.83	0.23	0.12	0.00
70.0	74.9	24.	0.81	0.66	0.26	0.87	0.16	0.20	0.25	0.15	0.78	0.17	0.78	0.00	0.80	0.07	0.09	0.00
69.0	72.5	13.	0.63	0.66	0.15	0.85	0.12	0.15	0.04	0.15	0.71	0.14	0.69	0.09	0.82	0.00	0.17	0.25
68.0	73.4	29.	0.92	0.84	0.20	0.75	0.13	0.00	0.03	0.12	0.84	0.17	0.91	0.33	0.81	0.21	0.27	0.32
67.0	64.9	5.	0.65	0.82	0.25	0.81	0.27	0.14	0.16	0.17	0.66	0.19	0.73	0.18	0.77	0.28	0.14	0.09
66.0	68.0	4.	0.88	0.81	0.26	0.82	0.19	0.20	0.14	0.10	0.61	0.21	0.67	0.36	0.78	0.53	0.17	0.06
65.0	71.9	48.	0.93	0.81	0.35	0.84	0.24	0.06	0.21	0.08	0.83	0.25	0.72	0.38	0.78	0.38	0.22	0.11
64.0	62.1	4.	0.77	0.71	0.22	0.81	0.18	0.14	0.33	0.16	0.71	0.27	0.53	0.13	0.73	0.30	0.25	0.17
63.0	65.0	4.	0.68	0.73	0.30	0.82	0.17	0.07	0.13	0.14	0.72	0.28	0.78	0.17	0.71	0.13	0.19	0.14
62.0	67.1	26.	0.86	0.81	0.23	0.81	0.16	0.35	0.13	0.18	0.80	0.27	0.55	0.06	0.84	0.26	0.13	0.43
61.0	64.6	13.	0.53	0.69	0.29	0.81	0.22	0.08	0.33	0.14	0.68	0.19	0.73	0.05	0.83	0.25	0.14	0.29
60.0	60.9	0.	0.83	0.73	0.20	0.62	0.14	0.17	0.00	0.25	0.74	0.19	0.73	0.29	0.82	0.35	0.22	0.35
59.0	53.1	35.	0.81	0.77	0.27	0.65	0.31	0.04	0.25	0.19	0.78	0.29	0.86	0.31	0.80	0.37	0.25	0.32
58.0	55.2	8.	0.77	0.68	0.31	0.76	0.31	0.33	0.19	0.14	0.60	0.21	0.64	0.31	0.74	0.30	0.21	0.15
57.0	55.4	3.	0.72	0.66	0.22	0.66	0.18	0.22	0.33	0.27	0.77	0.23	0.81	0.34	0.76	0.29	0.26	0.23
56.0	59.3	11.	0.67	0.74	0.16	0.80	0.20	0.31	0.38	0.17	0.78	0.25	0.81	0.28	0.61	0.27	0.30	0.21
55.0	47.1	62.	0.71	0.70	0.30	0.73	0.25	0.08	0.15	0.24	0.61	0.29	0.64	0.23	0.66	0.14	0.30	0.41
54.0	56.7	7.	0.73	0.76	0.22	0.76	0.21	0.28	0.20	0.15	0.75	0.33	0.73	0.28	0.67	0.17	0.26	0.19

53.0	59.1	37.	0.68	0.77	0.32	0.75	0.26	0.24	0.18	0.18	0.79	0.33	0.66	0.17	0.78	0.30	0.28	0.15
52.0	52.7	0.	0.63	0.71	0.23	0.79	0.29	0.19	0.20	0.24	0.64	0.25	0.81	0.09	0.62	0.12	0.20	0.15
51.0	48.1	8.	0.82	0.74	0.24	0.73	0.22	0.36	0.26	0.28	0.70	0.27	0.73	0.46	0.66	0.29	0.38	0.35
50.0	50.6	0.	0.66	0.65	0.27	0.69	0.36	0.24	0.12	0.29	0.68	0.15	0.74	0.05	0.65	0.21	0.25	0.35
49.0	49.8	0.	0.81	0.60	0.35	0.76	0.33	0.22	0.14	0.27	0.65	0.27	0.57	0.26	0.69	0.28	0.20	0.29
48.0	48.8	0.	0.70	0.72	0.26	0.73	0.29	0.29	0.21	0.32	0.69	0.29	0.79	0.09	0.73	0.36	0.23	0.37
47.0	49.0	4.	0.78	0.77	0.22	0.65	0.27	0.31	0.22	0.25	0.67	0.22	0.61	0.25	0.65	0.29	0.34	0.27
46.0	47.2	1.	0.66	0.68	0.41	0.73	0.17	0.29	0.23	0.17	0.61	0.36	0.52	0.26	0.57	0.13	0.27	0.32
45.0	44.3	0.	0.69	0.64	0.30	0.70	0.27	0.30	0.32	0.26	0.65	0.23	0.87	0.22	0.64	0.22	0.36	0.40
44.0	53.3	86.	0.65	0.65	0.19	0.73	0.27	0.25	0.26	0.21	0.64	0.21	0.76	0.39	0.64	0.28	0.18	0.15
43.0	42.8	0.	0.74	0.74	0.24	0.61	0.25	0.43	0.29	0.25	0.66	0.30	0.81	0.40	0.74	0.23	0.30	0.23
42.0	39.4	7.	0.75	0.69	0.29	0.67	0.33	0.17	0.26	0.31	0.61	0.34	0.90	0.37	0.70	0.45	0.30	0.24
41.0	42.0	1.	0.57	0.67	0.25	0.67	0.27	0.15	0.27	0.40	0.70	0.26	0.75	0.37	0.63	0.30	0.29	0.55
40.0	39.7	0.	0.81	0.56	0.37	0.69	0.29	0.32	0.35	0.28	0.61	0.30	0.56	0.37	0.71	0.35	0.37	0.36
39.0	44.1	26.	0.72	0.62	0.27	0.70	0.29	0.34	0.37	0.26	0.67	0.27	0.63	0.46	0.62	0.41	0.34	0.29
38.0	44.1	37.	0.64	0.68	0.21	0.70	0.26	0.26	0.22	0.27	0.60	0.26	0.66	0.48	0.58	0.44	0.34	0.34
37.0	34.7	5.	0.59	0.66	0.39	0.63	0.28	0.39	0.32	0.35	0.58	0.36	0.65	0.35	0.65	0.39	0.37	0.13
36.0	38.9	8.	0.69	0.71	0.37	0.65	0.31	0.25	0.44	0.37	0.73	0.32	0.63	0.45	0.60	0.39	0.27	0.47
35.0	36.5	2.	0.78	0.76	0.32	0.63	0.34	0.46	0.30	0.30	0.53	0.31	0.61	0.33	0.73	0.34	0.17	0.27
34.0	34.3	0.	0.71	0.70	0.36	0.62	0.31	0.41	0.25	0.33	0.62	0.37	0.59	0.31	0.60	0.26	0.30	0.29
33.0	27.6	29.	0.54	0.60	0.25	0.56	0.35	0.27	0.33	0.39	0.68	0.44	0.63	0.42	0.68	0.34	0.27	0.32
32.0	23.5	72.	0.65	0.59	0.33	0.53	0.41	0.38	0.30	0.40	0.59	0.38	0.73	0.34	0.54	0.38	0.32	0.25
31.0	39.6	74.	0.68	0.66	0.39	0.62	0.28	0.30	0.26	0.36	0.71	0.32	0.72	0.29	0.61	0.44	0.35	0.42
30.0	32.1	5.	0.68	0.75	0.47	0.63	0.29	0.44	0.36	0.35	0.64	0.35	0.67	0.49	0.66	0.30	0.38	0.55
29.0	31.7	7.	0.58	0.61	0.37	0.59	0.35	0.35	0.44	0.34	0.71	0.41	0.56	0.49	0.60	0.55	0.40	0.25
28.0	32.9	24.	0.59	0.47	0.41	0.75	0.34	0.42	0.35	0.29	0.61	0.46	0.60	0.44	0.66	0.37	0.29	0.26
27.0	25.0	4.	0.67	0.64	0.30	0.59	0.41	0.44	0.28	0.46	0.63	0.41	0.59	0.17	0.68	0.36	0.27	0.38
26.0	20.4	32.	0.58	0.51	0.40	0.61	0.37	0.40	0.40	0.38	0.64	0.49	0.68	0.37	0.65	0.38	0.43	0.43
25.0	24.8	0.	0.62	0.59	0.37	0.62	0.51	0.38	0.45	0.33	0.61	0.32	0.57	0.45	0.56	0.39	0.38	0.38
24.0	24.7	0.	0.62	0.64	0.47	0.55	0.40	0.37	0.38	0.33	0.67	0.48	0.47	0.37	0.58	0.51	0.38	0.36
23.0	14.4	75.	0.60	0.56	0.44	0.55	0.42	0.44	0.39	0.49	0.57	0.47	0.55	0.46	0.54	0.41	0.30	0.38
22.0	27.4	30.	0.60	0.62	0.42	0.64	0.36	0.29	0.40	0.34	0.50	0.38	0.47	0.43	0.69	0.51	0.38	0.36
21.0	24.7	14.	0.57	0.64	0.45	0.56	0.38	0.32	0.40	0.38	0.62	0.39	0.60	0.33	0.61	0.38	0.41	0.42
20.0	21.8	3.	0.65	0.51	0.40	0.59	0.46	0.37	0.41	0.32	0.64	0.40	0.65	0.49	0.45	0.52	0.42	0.39
19.0	31.1	147.	0.62	0.49	0.38	0.61	0.32	0.21	0.39	0.25	0.58	0.37	0.58	0.33	0.48	0.41	0.25	0.43
18.0	16.5	2.	0.60	0.58	0.44	0.49	0.38	0.37	0.41	0.54	0.61	0.41	0.56	0.34	0.54	0.40	0.41	0.31
17.0	16.1	0.	0.66	0.68	0.45	0.47	0.49	0.38	0.39	0.41	0.56	0.36	0.47	0.38	0.58	0.43	0.47	0.31
16.0	14.0	4.	0.62	0.50	0.39	0.63	0.45	0.41	0.42	0.26	0.52	0.51	0.52	0.42	0.56	0.38	0.50	0.47
15.0	6.8	66.	0.50	0.48	0.42	0.57	0.45	0.38	0.48	0.54	0.57	0.48	0.57	0.49	0.49	0.37	0.50	0.43
14.0	8.0	36.	0.49	0.49	0.46	0.56	0.47	0.26	0.36	0.46	0.50	0.52	0.53	0.31	0.64	0.38	0.48	0.42
13.0	14.3	2.	0.59	0.56	0.55	0.61	0.46	0.42	0.40	0.45	0.48	0.39	0.57	0.36	0.50	0.47	0.40	0.51
12.0	24.3	152.	0.51	0.61	0.50	0.56	0.32	0.34	0.55	0.49	0.63	0.38	0.58	0.32	0.55	0.40	0.39	0.27
11.0	23.3	151.	0.51	0.50	0.45	0.70	0.43	0.37	0.49	0.33	0.48	0.33	0.53	0.45	0.61	0.47	0.48	0.44
10.0	16.9	48.	0.67	0.60	0.47	0.63	0.51	0.47	0.42	0.30	0.58	0.47	0.43	0.44	0.53	0.51	0.41	0.58
9.0	0.0	81.	0.50	0.54	0.40	0.49	0.42	0.43	0.58	0.43	0.47	0.52	0.52	0.48	0.48	0.48	0.60	0.51
8.0	11.7	14.	0.51	0.58	0.46	0.48	0.40	0.35	0.52	0.37	0.52	0.40	0.35	0.42	0.46	0.41	0.57	0.49
7.0	5.2	3.	0.48	0.47	0.44	0.48	0.51	0.40	0.41	0.53	0.65	0.49	0.45	0.41	0.49	0.53	0.62	0.44
6.0	-0.7	45.	0.59	0.49	0.49	0.55	0.61	0.59	0.52	0.52	0.49	0.42	0.51	0.44	0.56	0.52	0.61	0.46
5.0	2.0	9.	0.57	0.53	0.54	0.56	0.44	0.48	0.46	0.52	0.51	0.59	0.56	0.45	0.52	0.46	0.47	0.48
4.0	5.7	3.	0.55	0.46	0.46	0.42	0.44	0.51	0.54	0.54	0.55	0.37	0.51	0.50	0.50	0.46	0.50	0.41
3.0	7.7	22.	0.58	0.54	0.53	0.61	0.53	0.41	0.53	0.46	0.52	0.49	0.50	0.42	0.51	0.47	0.48	0.39
2.0	-4.7	45.	0.50	0.41	0.29	0.44	0.50	0.40	0.57	0.42	0.52	0.57	0.42	0.55	0.49	0.53	0.53	0.50
1.0	9.5	72.	0.62	0.53	0.57	0.53	0.39	0.46	0.49	0.57	0.54	0.40	0.49	0.45	0.52	0.45	0.51	0.62

SCORE TR	SCORE COM	VAR VAR	INTERM CONDITIONAL PROBABILITIES 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
100.0	90.2	96.	0.50	0.50	0.99	1.00	0.93	0.04	0.20	0.50	0.50	0.13	0.00	0.00	0.03	0.50	0.50	0.50
99.0	102.1	10.	0.50	0.50	1.00	0.50	0.90	0.02	0.50	0.50	0.50	0.00	0.01	0.50	0.50	0.50	0.50	0.50
98.0	92.9	26.	0.50	0.50	1.00	0.80	0.97	0.01	0.87	0.50	0.50	0.00	0.19	0.00	0.50	0.00	0.50	0.50
97.0	100.3	11.	0.50	1.00	0.93	0.50	0.85	0.04	1.00	0.50	0.33	0.01	0.00	0.00	0.00	0.50	0.50	0.50
96.0	100.6	21.	0.50	1.00	0.89	0.50	0.88	0.00	1.00	0.50	0.18	0.01	0.01	0.00	0.00	0.50	0.50	0.50
95.0	96.7	3.	0.50	1.00	0.97	0.50	0.97	0.17	0.76	0.50	1.00	0.01	0.04	0.00	0.00	0.00	0.50	0.50
94.0	96.8	8.	0.44	0.66	0.83	0.50	0.88	0.01	1.00	0.50	0.23	0.01	0.00	0.00	0.00	0.50	0.50	0.50
93.0	95.3	6.	0.50	1.00	0.92	0.50	0.77	0.07	0.92	0.50	0.47	0.03	0.01	0.14	0.00	0.50	0.50	0.50
92.0	97.7	32.	0.50	1.00	0.97	0.50	0.94	0.18	0.93	1.00	1.00	0.01	0.06	0.10	0.00	0.47	0.57	0.50
91.0	90.6	0.	0.50	1.00	0.88	0.50	0.86	0.09	0.85	0.50	0.42	0.05	0.01	0.00	0.13	0.50	0.50	0.50
90.0	86.5	12.	0.50	1.00	0.96	0.86	0.89	0.08	0.72	1.00	1.00	0.11	0.03	0.04	0.07	1.00	0.89	0.00
89.0	81.1	62.	0.50	1.00	0.88	0.67	0.89	0.11	0.78	0.91	0.90	0.15	0.04	0.07	0.12	0.80	0.83	0.10
88.0	93.4	29.	0.06	0.88	0.91	0.69	0.94	0.19	0.70	0.78	0.94	0.05	0.04	0.24	0.04	0.32	0.78	0.13
87.0	92.7	33.	0.70	0.61	0.94	0.50	0.84	0.05	1.00	0.92	0.27	0.06	0.05	0.00	0.25	1.00	1.00	0.00
86.0	82.9	9.	0.50	0.68	0.82	0.50	0.76	0.09	1.00	0.83	0.26	0.07	0.08	0.00	0.21	0.91	1.00	0.06
85.0	85.3	0.	0.06	0.87	0.93	0.75	0.87	0.13	0.71	0.83	0.92	0.08	0.06	0.08	0.23	0.77	0.32	0.00
84.0	84.4	0.	0.50	0.96	0.85	0.50	0.73	0.14	1.00	1.00	0.52	0.06	0.05	0.03	0.18	0.78	0.91	0.10
83.0	82.4	0.	0.50	0.70	0.78	0.50	0.83	0.05	0.97	1.00	0.56	0.11	0.08	0.13	0.05	0.87	0.73	0.00
82.0	74.7	53.	0.09	0.94	0.88	1.00	0.88	0.12	0.79	0.89	0.93	0.20	0.09	0.19	0.13	0.95	0.87	0.10
81.0	82.0	1.	0.20	0.90	0.84	0.50	0.74	0.14	0.87	1.00	0.62	0.12	0.05	0.08	0.06	1.00	0.77	0.10
80.0	78.6	2.	0.38	0.89	0.81	0.00	0.71	0.16	0.87	0.85	0.75	0.12	0.11	0.04	0.12	0.71	0.86	0.00
79.0	81.6	7.	0.22	0.73	0.88	0.43	0.92	0.15	0.83	0.89	0.94	0.11	0.20	0.13	0.10	0.54	0.71	0.22
78.0	73.1	24.	0.13	0.88	0.88	0.91	0.81	0.16	0.74	1.00	1.00	0.21	0.05	0.04	0.11	0.71	0.55	0.14
77.0	73.0	16.	0.06	0.62	0.83	0.36	0.83	0.19	0.71	0.87	0.91	0.21	0.08	0.07	0.20	0.67	0.59	0.18
76.0	78.8	8.	0.12	0.83	0.89	0.65	0.91	0.11	0.80	0.69	0.90	0.14	0.14	0.13	0.13	0.91	0.58	0.20
75.0	73.9	1.	0.72	0.74	0.72	0.50	0.84	0.12	0.92	0.89	0.96	0.36	0.11	0.11	0.07	0.19	0.94	0.71	0.06
74.0	77.1	10.	0.13	0.71	0.87	0.42	0.86	0.17	0.74	0.84	0.80	0.21	0.09	0.15	0.17	0.72	0.71	0.18
73.0	78.8	34.	0.08	0.83	0.87	0.71	0.79	0.16	0.69	0.89	0.62	0.13	0.11	0.06	0.13	0.88	0.67	0.28
72.0	74.4	6.	0.23	0.81	0.81	0.14	0.79	0.26	0.75	0.93	0.68	0.09	0.21	0.07	0.22	0.79	0.71	0.04
71.0	76.5	30.	0.11	0.89	0.83	0.50	0.90	0.31	0.71	0.85	0.96	0.10	0.13	0.26	0.21	0.59	0.87	0.20
70.0	72.9	8.	0.05	0.71	0.82	0.38	0.84	0.26	0.75	0.74	0.91	0.09	0.26	0.18	0.14	0.46	0.69	0.18
69.0	68.9	0.	0.36	0.81	0.86	0.59	0.85	0.15	0.89	0.66	0.95	0.22	0.11	0.23	0.36	0.76	0.60	0.19
68.0	74.6	44.	0.53	0.84	0.72	0.10	0.83	0.08	0.76	0.94	0.61	0.15	0.09	0.07	0.21	0.92	0.85	0.21
67.0	68.6	3.	0.19	0.72	0.71	0.00	0.75	0.15	0.75	0.85	0.64	0.20	0.15	0.07	0.17	0.73	0.80	0.16
66.0	68.9	8.	0.17	0.88	0.76	0.34	0.82	0.25	0.78	0.54	0.77	0.15	0.15	0.18	0.11	0.74	0.79	0.15
65.0	66.7	3.	0.46	0.63	0.71	0.09	0.71	0.22	0.80	0.92	0.65	0.19	0.12	0.25	0.19	0.84	0.69	0.05
64.0	61.1	9.	0.16	0.91	0.76	0.33	0.75	0.22	0.66	0.82	0.83	0.25	0.16	0.07	0.17	0.70	0.92	0.33
63.0	57.4	32.	0.17	0.78	0.77	0.53	0.72	0.17	0.79	0.71	0.74	0.23	0.24	0.15	0.29	0.81	0.82	0.31
62.0	66.0	16.	0.29	0.77	0.74	0.33	0.82	0.30	0.85	0.84	0.74	0.12	0.24	0.17	0.18	0.79	0.80	0.06
61.0	64.6	13.	0.56	0.58	0.82	0.22	0.72	0.25	0.74	0.80	0.47	0.22	0.22	0.24	0.20	0.81	0.77	0.16
60.0	59.0	1.	0.11	0.74	0.77	0.38	0.78	0.28	0.72	0.83	0.66	0.23	0.32	0.33	0.22	0.57	0.66	0.15
59.0	65.2	38.	0.45	0.72	0.77	0.39	0.74	0.22	0.82	0.89	0.65	0.21	0.13	0.24	0.22	0.77	0.61	0.00
58.0	51.4	43.	0.24	0.78	0.77	0.22	0.72	0.25	0.72	0.80	0.85	0.33	0.25	0.21	0.26	0.77	0.76	0.21
57.0	57.2	0.	0.30	0.91	0.72	0.42	0.76	0.35	0.80	0.82	0.51	0.21	0.22	0.17	0.18	0.69	0.87	0.23
56.0	52.5	12.	0.20	0.73	0.68	0.41	0.75	0.26	0.69	0.77	0.78	0.17	0.35	0.15	0.23	0.54	0.75	0.13
55.0	66.9	141.	0.11	0.78	0.80	0.27	0.86	0.17	0.71	0.75	0.70	0.29	0.23	0.35	0.11	0.65	0.91	0.40
54.0	54.5	0.	0.21	0.68	0.78	0.43	0.73	0.26	0.75	0.78	0.90	0.27	0.24	0.21	0.23	0.77	0.72	0.22

53.0	48.4	22.	0.18	0.67	0.68	0.28	0.70	0.34	0.62	0.74	0.84	0.22	0.33	0.25	0.18	0.63	0.67	0.24
52.0	51.8	0.	0.52	0.72	0.63	0.33	0.65	0.28	0.77	0.76	0.56	0.23	0.18	0.24	0.18	0.48	0.70	0.13
51.0	50.3	0.	0.26	0.76	0.69	0.30	0.63	0.25	0.75	0.74	0.66	0.25	0.26	0.22	0.26	0.58	0.76	0.21
50.0	53.2	10.	0.24	0.71	0.72	0.41	0.64	0.27	0.72	0.69	0.80	0.24	0.21	0.25	0.26	0.49	0.63	0.29
49.0	43.8	27.	0.28	0.58	0.65	0.26	0.64	0.20	0.80	0.71	0.50	0.34	0.29	0.31	0.31	0.74	0.67	0.13
48.0	56.1	66.	0.24	0.77	0.64	0.34	0.68	0.31	0.64	0.69	0.83	0.18	0.27	0.27	0.16	0.60	0.64	0.20
47.0	50.8	14.	0.46	0.57	0.69	0.19	0.63	0.23	0.70	0.78	0.47	0.29	0.22	0.25	0.36	0.72	0.77	0.19
46.0	28.4	311.	0.27	0.61	0.56	0.17	0.67	0.37	0.73	0.66	0.56	0.36	0.35	0.20	0.41	0.84	0.73	0.27
45.0	41.9	10.	0.33	0.65	0.66	0.33	0.66	0.37	0.72	0.70	0.67	0.27	0.31	0.33	0.33	0.54	0.69	0.29
44.0	37.7	40.	0.50	0.71	0.62	0.14	0.68	0.32	0.83	0.64	0.59	0.33	0.25	0.14	0.41	0.79	0.74	0.32
43.0	31.9	122.	0.33	0.69	0.68	0.38	0.62	0.29	0.70	0.77	0.85	0.42	0.33	0.29	0.34	0.67	0.62	0.24
42.0	35.6	41.	0.29	0.75	0.63	0.25	0.54	0.39	0.74	0.63	0.64	0.30	0.33	0.33	0.27	0.60	0.70	0.32
41.0	48.9	63.	0.46	0.71	0.75	0.47	0.67	0.40	0.71	0.66	0.60	0.24	0.27	0.38	0.28	0.61	0.64	0.38
40.0	44.4	19.	0.27	0.77	0.71	0.30	0.69	0.31	0.64	0.66	0.68	0.33	0.27	0.25	0.35	0.51	0.70	0.38
39.0	44.1	26.	0.24	0.65	0.64	0.42	0.66	0.29	0.71	0.67	0.74	0.32	0.19	0.39	0.31	0.47	0.51	0.34
38.0	33.5	20.	0.30	0.67	0.59	0.44	0.63	0.38	0.62	0.64	0.58	0.33	0.29	0.29	0.24	0.61	0.65	0.29
37.0	39.0	4.	0.34	0.71	0.63	0.28	0.63	0.34	0.67	0.72	0.59	0.34	0.27	0.33	0.23	0.69	0.61	0.34
36.0	35.7	0.	0.23	0.60	0.58	0.29	0.58	0.43	0.67	0.65	0.70	0.21	0.35	0.38	0.39	0.69	0.73	0.31
35.0	32.0	9.	0.28	0.67	0.59	0.47	0.58	0.41	0.65	0.60	0.61	0.31	0.30	0.35	0.22	0.67	0.64	0.29
34.0	29.4	21.	0.49	0.68	0.61	0.20	0.66	0.30	0.63	0.77	0.69	0.39	0.41	0.28	0.35	0.61	0.75	0.31
33.0	41.0	64.	0.32	0.63	0.65	0.27	0.65	0.38	0.65	0.68	0.60	0.28	0.29	0.35	0.41	0.56	0.58	0.32
32.0	44.0	144.	0.30	0.60	0.72	0.33	0.66	0.37	0.82	0.64	0.69	0.29	0.29	0.39	0.38	0.60	0.76	0.36
31.0	37.5	42.	0.40	0.55	0.70	0.38	0.62	0.31	0.72	0.60	0.46	0.32	0.37	0.31	0.47	0.70	0.64	0.39
30.0	31.0	1.	0.45	0.71	0.62	0.39	0.53	0.40	0.75	0.61	0.64	0.32	0.34	0.37	0.28	0.54	0.68	0.40
29.0	23.0	36.	0.42	0.55	0.64	0.32	0.51	0.40	0.64	0.68	0.63	0.39	0.42	0.29	0.33	0.69	0.53	0.37
28.0	33.8	34.	0.50	0.69	0.64	0.42	0.69	0.37	0.63	0.68	0.63	0.37	0.33	0.38	0.29	0.54	0.56	0.42
27.0	23.2	14.	0.43	0.55	0.64	0.33	0.62	0.44	0.63	0.53	0.61	0.37	0.44	0.20	0.38	0.47	0.65	0.40
26.0	26.5	0.	0.30	0.70	0.68	0.31	0.67	0.43	0.78	0.64	0.64	0.46	0.36	0.35	0.43	0.63	0.67	0.42
25.0	22.2	8.	0.49	0.58	0.63	0.37	0.62	0.45	0.61	0.58	0.54	0.41	0.37	0.31	0.50	0.50	0.63	0.41
24.0	14.6	89.	0.45	0.65	0.61	0.33	0.62	0.35	0.69	0.60	0.71	0.50	0.46	0.38	0.51	0.58	0.56	0.42
23.0	21.8	1.	0.40	0.58	0.55	0.33	0.55	0.41	0.60	0.51	0.62	0.33	0.40	0.37	0.43	0.63	0.65	0.45
22.0	29.6	58.	0.43	0.71	0.70	0.51	0.59	0.44	0.56	0.43	0.49	0.28	0.46	0.43	0.44	0.75	0.70	0.47
21.0	15.1	35.	0.43	0.59	0.59	0.36	0.53	0.30	0.57	0.61	0.57	0.48	0.48	0.46	0.42	0.67	0.55	0.32
20.0	17.6	6.	0.31	0.54	0.68	0.39	0.44	0.42	0.59	0.70	0.54	0.44	0.45	0.34	0.46	0.57	0.47	0.38
19.0	29.3	106.	0.33	0.68	0.61	0.53	0.61	0.37	0.62	0.51	0.59	0.35	0.37	0.43	0.28	0.55	0.76	0.47
18.0	6.7	127.	0.44	0.62	0.58	0.43	0.62	0.48	0.63	0.46	0.47	0.50	0.52	0.35	0.47	0.63	0.60	0.38
17.0	16.5	0.	0.45	0.62	0.52	0.43	0.45	0.39	0.66	0.42	0.60	0.41	0.31	0.44	0.40	0.51	0.59	0.40
16.0	5.3	115.	0.52	0.59	0.49	0.44	0.67	0.40	0.52	0.61	0.61	0.52	0.49	0.42	0.46	0.50	0.60	0.36
15.0	19.3	18.	0.37	0.55	0.61	0.49	0.63	0.35	0.58	0.61	0.51	0.49	0.40	0.45	0.50	0.48	0.59	0.43
14.0	17.2	10.	0.48	0.63	0.60	0.53	0.59	0.38	0.58	0.51	0.55	0.48	0.38	0.57	0.45	0.47	0.51	0.45
13.0	13.3	0.	0.43	0.54	0.56	0.36	0.47	0.47	0.56	0.46	0.47	0.45	0.38	0.45	0.40	0.50	0.51	0.35
12.0	6.3	33.	0.45	0.64	0.53	0.50	0.54	0.47	0.67	0.60	0.55	0.48	0.45	0.34	0.45	0.49	0.56	0.39
11.0	12.2	1.	0.38	0.53	0.53	0.35	0.49	0.47	0.48	0.52	0.57	0.43	0.43	0.47	0.36	0.54	0.53	0.42
10.0	21.7	136.	0.46	0.49	0.52	0.46	0.61	0.35	0.56	0.51	0.47	0.35	0.44	0.42	0.36	0.50	0.55	0.42
9.0	20.8	139.	0.55	0.37	0.57	0.45	0.53	0.31	0.52	0.49	0.58	0.34	0.46	0.44	0.47	0.50	0.49	0.50
8.0	2.4	31.	0.46	0.56	0.38	0.42	0.52	0.37	0.55	0.52	0.42	0.50	0.44	0.55	0.40	0.57	0.48	0.42
7.0	4.2	8.	0.49	0.66	0.45	0.31	0.46	0.48	0.51	0.46	0.57	0.44	0.41	0.36	0.47	0.43	0.51	0.39
6.0	1.5	20.	0.48	0.52	0.49	0.51	0.48	0.44	0.48	0.47	0.62	0.47	0.47	0.37	0.50	0.47	0.56	0.40
5.0	10.8	34.	0.41	0.56	0.55	0.47	0.48	0.42	0.53	0.61	0.50	0.47	0.41	0.60	0.56	0.55	0.52	0.38
4.0	13.3	86.	0.47	0.53	0.46	0.42	0.48	0.45	0.47	0.55	0.40	0.33	0.49	0.44	0.34	0.49	0.62	0.50
3.0	10.9	62.	0.46	0.45	0.57	0.59	0.50	0.46	0.55	0.47	0.59	0.40	0.49	0.52	0.45	0.48	0.51	0.48
2.0	-3.9	35.	0.56	0.52	0.51	0.49	0.44	0.59	0.56	0.54	0.43	0.52	0.47	0.44	0.48	0.58	0.40	0.51
1.0	-8.5	90.	0.43	0.51	0.43	0.48	0.53	0.47	0.54	0.46	0.43	0.63	0.47	0.47	0.46	0.47	0.54	0.51

Variance = 33.31

SCORE TR	SCORE COM	VAR VAR	MIDTERM CONDITIONAL PROBABILITIES 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
100.0	101.0	1.	0.00	0.98	0.50	0.00	0.30	0.50	0.00	0.00	0.86	1.00	1.00	0.50	0.95	1.00	0.95	0.06
99.0	111.7	160.	0.01	0.59	0.71	0.03	0.50	0.50	0.50	0.13	0.94	1.00	0.50	0.58	0.98	0.57	0.95	0.00
98.0	72.0	676.	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
97.0	90.9	37.	0.01	0.82	0.26	0.01	0.15	0.50	0.00	0.00	0.76	0.88	1.00	0.50	0.91	1.00	0.92	0.03
96.0	80.6	237.	0.14	0.89	0.47	0.05	0.50	0.00	0.00	0.18	0.96	1.00	0.50	0.59	0.96	0.63	0.93	0.01
95.0	89.2	34.	0.11	0.94	0.31	0.00	0.00	0.50	0.00	0.01	0.88	0.50	0.50	0.50	0.92	0.50	0.90	0.01
94.0	83.9	101.	0.08	0.87	0.38	0.04	0.50	0.00	0.00	0.20	0.96	1.00	0.50	0.66	0.96	0.63	0.89	0.03
93.0	108.1	227.	0.07	0.76	0.60	0.16	0.00	0.50	0.20	0.04	0.94	0.79	0.50	0.00	0.95	0.50	0.95	0.03
92.0	93.5	2.	0.03	0.80	0.80	0.07	0.08	0.00	0.00	0.17	0.85	1.00	0.50	0.68	0.92	0.88	0.88	0.02
91.0	87.1	15.	0.04	0.81	1.00	0.08	0.50	0.13	0.10	0.11	0.95	0.94	0.50	0.36	0.89	1.00	0.76	0.26
90.0	81.9	66.	0.12	0.88	1.00	0.06	0.50	0.00	0.00	0.13	0.97	0.94	0.50	0.41	0.94	1.00	0.84	0.20
89.0	89.2	0.	0.13	0.80	0.58	0.21	0.05	0.13	0.00	0.08	0.92	0.72	0.50	0.00	0.90	0.50	0.91	0.03
88.0	78.7	86.	0.13	0.75	0.38	0.20	0.00	0.00	0.20	0.03	0.89	0.76	0.50	0.17	0.87	0.50	0.90	0.04
87.0	83.5	12.	0.04	0.77	0.38	0.04	0.47	0.00	0.00	0.05	0.94	0.89	0.65	0.50	0.88	0.53	0.88	0.01
86.0	91.0	25.	0.05	0.77	0.50	0.08	0.11	0.07	0.00	0.21	0.90	0.89	0.50	0.52	0.98	0.64	0.87	0.07
85.0	80.8	17.	0.15	0.87	0.75	0.07	0.07	0.00	0.00	0.23	0.87	1.00	0.50	0.61	0.96	0.45	0.87	0.04
84.0	73.9	102.	0.14	0.71	0.57	0.03	0.15	0.00	0.00	0.07	0.83	1.00	0.50	0.00	0.92	0.50	0.86	0.09
83.0	68.7	205.	0.23	0.85	0.67	0.25	0.00	0.00	0.05	0.08	0.90	0.80	0.50	0.00	0.84	0.50	0.81	0.04
82.0	81.1	0.	0.08	0.87	0.62	0.06	0.22	0.22	0.06	0.09	0.74	0.96	0.80	0.11	0.88	0.89	0.83	0.13
81.0	91.8	116.	0.06	0.79	0.75	0.15	0.22	0.18	0.05	0.17	0.91	0.93	0.50	0.57	0.84	0.75	0.87	0.11
80.0	79.7	0.	0.07	0.76	0.61	0.06	0.15	0.20	0.14	0.09	0.76	0.89	1.00	0.00	0.82	0.67	0.84	0.15
79.0	88.9	99.	0.09	0.79	0.83	0.16	0.12	0.20	0.17	0.20	0.82	0.89	0.50	0.64	0.87	0.65	0.85	0.08
78.0	75.4	7.	0.12	0.85	0.85	0.11	0.23	0.23	0.29	0.15	0.87	0.86	0.83	0.45	0.92	0.93	0.76	0.26
77.0	89.1	147.	0.12	0.83	0.64	0.11	0.13	0.32	0.09	0.16	0.91	0.84	0.74	0.07	0.85	0.72	0.88	0.11
76.0	52.3	563.	0.32	0.86	0.83	0.09	0.00	0.00	0.14	0.09	0.83	1.00	0.50	0.22	0.88	0.50	0.86	0.18
75.0	76.8	3.	0.11	0.85	0.95	0.14	0.19	0.20	0.11	0.14	0.87	0.81	0.80	0.42	0.90	1.00	0.75	0.28
74.0	43.1	956.	0.38	0.89	0.72	0.08	0.15	0.20	0.04	0.06	0.84	0.84	0.80	0.17	0.80	1.00	0.82	0.11
73.0	75.3	5.	0.20	0.72	0.81	0.22	0.11	0.09	0.04	0.13	0.90	0.83	0.50	0.00	0.80	0.50	0.85	0.15
72.0	80.0	63.	0.10	0.67	0.80	0.14	0.10	0.16	0.40	0.22	0.89	0.88	0.50	0.31	0.89	0.91	0.82	0.38
71.0	73.3	5.	0.15	0.79	0.54	0.14	0.12	0.36	0.07	0.16	0.86	0.81	0.77	0.13	0.76	0.82	0.69	0.10
70.0	69.3	0.	0.16	0.80	0.70	0.22	0.22	0.09	0.21	0.11	0.88	0.67	0.67	0.44	0.74	0.82	0.83	0.17
69.0	58.8	105.	0.30	0.81	0.77	0.13	0.07	0.38	0.23	0.11	0.78	0.86	1.00	0.31	0.81	0.78	0.84	0.08
68.0	69.4	2.	0.13	0.80	0.61	0.17	0.16	0.16	0.15	0.19	0.65	0.83	0.82	0.00	0.78	0.71	0.78	0.21
67.0	74.1	51.	0.14	0.76	0.83	0.26	0.20	0.09	0.27	0.21	0.88	0.85	0.50	0.34	0.66	0.86	0.83	0.29
66.0	57.9	65.	0.19	0.68	0.78	0.18	0.17	0.06	0.20	0.14	0.81	0.90	0.50	0.38	0.69	0.90	0.73	0.24
65.0	54.4	112.	0.31	0.82	0.66	0.22	0.20	0.20	0.19	0.19	0.81	0.77	0.80	0.09	0.70	1.00	0.81	0.12
64.0	63.1	0.	0.24	0.74	0.71	0.23	0.08	0.11	0.25	0.31	0.81	0.80	0.80	0.38	0.83	0.75	0.81	0.19
63.0	67.6	21.	0.19	0.71	0.67	0.19	0.20	0.20	0.32	0.18	0.85	0.80	0.69	0.40	0.80	0.75	0.78	0.16
62.0	66.6	21.	0.11	0.76	0.83	0.18	0.13	0.14	0.24	0.18	0.75	0.81	1.00	0.42	0.63	0.73	0.78	0.31
61.0	68.9	63.	0.19	0.69	0.81	0.32	0.14	0.31	0.18	0.19	0.82	0.77	1.00	0.11	0.75	1.00	0.74	0.23
60.0	59.3	0.	0.21	0.78	0.72	0.20	0.26	0.05	0.18	0.26	0.82	0.71	0.71	0.61	0.81	0.81	0.76	0.24
59.0	61.0	4.	0.16	0.81	0.76	0.29	0.13	0.06	0.25	0.17	0.77	0.85	0.50	0.41	0.66	0.53	0.75	0.32
58.0	47.1	119.	0.35	0.68	0.73	0.20	0.10	0.27	0.19	0.24	0.73	0.74	0.63	0.28	0.74	0.67	0.80	0.22
57.0	53.8	10.	0.30	0.79	0.60	0.22	0.23	0.33	0.15	0.20	0.81	0.83	0.55	0.32	0.78	0.70	0.75	0.22
56.0	66.5	111.	0.15	0.76	0.77	0.28	0.12	0.19	0.31	0.28	0.72	0.85	0.63	0.34	0.76	0.83	0.65	0.23
55.0	52.6	6.	0.22	0.72	0.53	0.17	0.39	0.23	0.26	0.16	0.79	0.82	0.76	0.17	0.73	0.71	0.72	0.29
54.0	45.5	72.	0.31	0.73	0.62	0.23	0.33	0.17	0.07	0.29	0.63	0.81	0.86	0.08	0.68	0.76	0.77	0.20

53.0	43.0	101.	0.38	0.78	0.68	0.20	0.25	0.26	0.33	0.30	0.77	0.81	0.71	0.23	0.79	0.57	0.72	0.20
52.0	66.4	209.	0.18	0.74	0.77	0.27	0.33	0.26	0.29	0.29	0.70	0.86	0.63	0.22	0.77	0.59	0.78	0.40
51.0	49.1	4.	0.30	0.76	0.70	0.23	0.28	0.29	0.27	0.25	0.70	0.88	0.63	0.38	0.74	0.74	0.81	0.34
50.0	50.4	0.	0.17	0.65	0.67	0.26	0.26	0.19	0.23	0.23	0.68	0.58	0.79	0.34	0.67	0.60	0.60	0.35
49.0	56.7	59.	0.24	0.59	0.71	0.17	0.2.	0.11	0.25	0.25	0.69	0.82	0.70	0.13	0.73	0.78	0.80	0.21
48.0	53.0	25.	0.25	0.69	0.64	0.26	0.30	0.20	0.16	0.29	0.70	0.75	0.63	0.11	0.61	0.87	0.70	0.24
47.0	49.7	7.	0.24	0.63	0.75	0.33	0.30	0.29	0.35	0.30	0.82	0.67	0.76	0.33	0.70	0.81	0.60	0.41
46.0	53.1	51.	0.22	0.67	0.68	0.35	0.26	0.29	0.22	0.32	0.69	0.73	0.77	0.27	0.75	0.63	0.61	0.36
45.0	55.6	112.	0.21	0.74	0.65	0.26	0.20	0.30	0.32	0.30	0.78	0.84	0.75	0.32	0.65	0.74	0.63	0.33
44.0	51.9	62.	0.26	0.69	0.71	0.37	0.45	0.14	0.16	0.34	0.75	0.69	0.65	0.45	0.66	0.79	0.77	0.34
43.0	48.3	28.	0.30	0.63	0.70	0.26	0.23	0.29	0.36	0.36	0.71	0.67	0.80	0.46	0.74	0.70	0.65	0.22
42.0	44.6	7.	0.27	0.67	0.70	0.36	0.30	0.29	0.39	0.29	0.69	0.58	0.67	0.35	0.61	0.67	0.62	0.36
41.0	34.9	38.	0.41	0.62	0.65	0.31	0.14	0.27	0.30	0.26	0.66	0.53	0.53	0.33	0.67	0.57	0.71	0.19
40.0	44.3	19.	0.27	0.76	0.57	0.32	0.55	0.27	0.20	0.20	0.68	0.71	0.74	0.41	0.68	0.53	0.63	0.19
39.0	33.6	29.	0.33	0.67	0.63	0.32	0.32	0.29	0.11	0.32	0.60	0.55	0.80	0.24	0.59	0.76	0.67	0.38
38.0	44.5	42.	0.29	0.61	0.63	0.41	0.30	0.32	0.33	0.35	0.67	0.64	0.86	0.26	0.65	0.78	0.61	0.28
37.0	38.7	3.	0.32	0.57	0.65	0.34	0.11	0.24	0.29	0.35	0.60	0.70	0.50	0.34	0.67	0.65	0.63	0.33
36.0	46.2	105.	0.29	0.64	0.67	0.32	0.27	0.40	0.16	0.35	0.75	0.54	0.55	0.42	0.71	0.53	0.60	0.37
35.0	48.2	174.	0.30	0.63	0.74	0.37	0.13	0.37	0.36	0.16	0.79	0.72	0.64	0.42	0.69	0.59	0.70	0.29
34.0	30.7	11.	0.37	0.63	0.60	0.36	0.33	0.28	0.37	0.33	0.60	0.76	0.60	0.51	0.68	0.74	0.67	0.33
33.0	39.2	39.	0.30	0.63	0.58	0.28	0.34	0.31	0.40	0.39	0.56	0.62	0.64	0.41	0.59	0.62	0.65	0.32
32.0	32.3	0.	0.37	0.72	0.58	0.38	0.36	0.29	0.18	0.35	0.63	0.62	0.62	0.26	0.66	0.61	0.61	0.34
31.0	30.9	0.	0.33	0.72	0.52	0.38	0.34	0.19	0.27	0.30	0.68	0.70	0.76	0.26	0.68	0.45	0.60	0.37
30.0	22.9	50.	0.41	0.49	0.57	0.35	0.44	0.42	0.35	0.44	0.49	0.68	0.73	0.50	0.63	0.62	0.68	0.43
29.0	29.0	0.	0.37	0.56	0.69	0.42	0.34	0.31	0.42	0.34	0.63	0.59	0.73	0.40	0.62	0.51	0.63	0.43
28.0	28.2	0.	0.40	0.56	0.49	0.27	0.30	0.48	0.31	0.31	0.68	0.77	0.69	0.44	0.63	0.83	0.61	0.26
27.0	23.6	12.	0.45	0.64	0.67	0.28	0.36	0.46	0.35	0.44	0.63	0.61	0.63	0.36	0.62	0.65	0.56	0.34
26.0	24.4	3.	0.40	0.62	0.73	0.43	0.17	0.18	0.38	0.40	0.75	0.64	0.83	0.40	0.66	0.58	0.57	0.42
25.0	25.7	0.	0.41	0.62	0.51	0.42	0.40	0.48	0.22	0.31	0.60	0.79	0.71	0.36	0.64	0.46	0.60	0.32
24.0	20.9	10.	0.38	0.68	0.59	0.33	0.43	0.25	0.34	0.36	0.53	0.68	0.65	0.47	0.69	0.45	0.59	0.42
23.0	30.5	56.	0.38	0.56	0.76	0.44	0.40	0.38	0.44	0.31	0.56	0.55	0.64	0.42	0.59	0.46	0.63	0.35
22.0	11.1	119.	0.46	0.60	0.53	0.40	0.42	0.32	0.38	0.38	0.52	0.60	0.58	0.41	0.58	0.52	0.57	0.37
21.0	32.4	130.	0.35	0.50	0.55	0.37	0.39	0.46	0.36	0.40	0.64	0.54	0.64	0.34	0.60	0.67	0.59	0.42
20.0	11.7	69.	0.47	0.56	0.57	0.38	0.34	0.44	0.31	0.44	0.50	0.63	0.61	0.40	0.60	0.54	0.48	0.34
19.0	28.1	83.	0.37	0.58	0.63	0.43	0.55	0.41	0.36	0.35	0.64	0.60	0.60	0.42	0.63	0.49	0.55	0.41
18.0	27.5	89.	0.38	0.57	0.68	0.56	0.49	0.39	0.35	0.45	0.62	0.61	0.57	0.46	0.62	0.60	0.58	0.52
17.0	10.8	39.	0.49	0.47	0.51	0.43	0.40	0.35	0.36	0.42	0.63	0.52	0.55	0.47	0.57	0.65	0.56	0.37
16.0	41.4	644.	0.25	0.57	0.67	0.46	0.36	0.44	0.43	0.53	0.52	0.56	0.48	0.44	0.49	0.52	0.45	0.47
15.0	15.3	0.	0.45	0.52	0.50	0.37	0.43	0.43	0.56	0.45	0.54	0.46	0.48	0.44	0.64	0.54	0.54	0.42
14.0	27.0	170.	0.36	0.45	0.52	0.40	0.56	0.38	0.38	0.42	0.53	0.67	0.58	0.35	0.55	0.59	0.68	0.49
13.0	-7.7	431.	0.58	0.61	0.42	0.35	0.38	0.41	0.39	0.43	0.50	0.58	0.58	0.39	0.52	0.57	0.51	0.41
12.0	7.8	18.	0.53	0.58	0.52	0.47	0.37	0.53	0.45	0.35	0.58	0.52	0.69	0.41	0.45	0.62	0.57	0.32
11.0	25.2	203.	0.37	0.53	0.48	0.56	0.44	0.43	0.40	0.40	0.56	0.55	0.50	0.42	0.51	0.41	0.57	0.48
10.0	-2.9	165.	0.57	0.60	0.62	0.47	0.48	0.45	0.46	0.41	0.57	0.52	0.54	0.32	0.49	0.60	0.50	0.51
9.0	15.9	47.	0.50	0.54	0.57	0.51	0.53	0.38	0.49	0.46	0.64	0.56	0.74	0.53	0.46	0.47	0.67	0.35
8.0	20.8	164.	0.41	0.55	0.52	0.56	0.45	0.43	0.41	0.57	0.53	0.51	0.58	0.43	0.66	0.51	0.38	0.40
7.0	20.4	178.	0.39	0.42	0.54	0.42	0.47	0.49	0.41	0.43	0.52	0.43	0.42	0.51	0.49	0.55	0.50	0.42
6.0	17.8	140.	0.43	0.49	0.59	0.42	0.59	0.43	0.46	0.50	0.53	0.54	0.50	0.38	0.51	0.59	0.53	0.43
5.0	7.2	5.	0.51	0.47	0.49	0.49	0.47	0.57	0.59	0.47	0.42	0.37	0.66	0.50	0.43	0.58	0.55	0.38
4.0	12.4	71.	0.51	0.45	0.39	0.47	0.54	0.57	0.37	0.59	0.55	0.59	0.57	0.36	0.48	0.51	0.58	0.47
3.0	24.9	480.	0.41	0.53	0.48	0.46	0.45	0.51	0.49	0.49	0.49	0.47	0.55	0.44	0.44	0.60	0.58	0.34
2.0	-0.0	4.	0.52	0.41	0.51	0.49	0.36	0.43	0.51	0.44	0.46	0.45	0.51	0.49	0.49	0.51	0.50	0.41
1.0	5.5	21.	0.49	0.48	0.50	0.49	0.39	0.51	0.48	0.51	0.42	0.44	0.46	0.51	0.58	0.53	0.55	0.58

Variance = 92.58

SCORE TR	SCORE COM	VAR VAR	MINTERM CONDITIONAL PROBABILITIES 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
100.0	93.3	45.	0.50	0.50	0.99	1.00	0.06	0.00	0.05	0.50	0.50	0.05	0.17	0.50	0.00	0.50	0.50	0.50
99.0	95.6	12.	1.00	0.14	0.97	1.00	0.05	0.00	0.04	0.50	1.00	0.06	0.14	0.50	0.07	0.50	0.80	0.50
98.0	93.2	23.	1.00	0.00	0.98	0.96	0.05	0.00	0.00	0.50	1.00	0.05	0.00	0.50	0.04	0.50	0.50	0.50
97.0	94.6	6.	1.00	0.42	0.87	1.00	0.00	0.50	0.00	0.50	0.17	0.00	0.50	0.50	0.00	0.50	0.50	0.50
96.0	89.4	44.	0.91	0.08	0.96	0.91	0.05	0.00	0.00	0.00	0.91	0.07	0.27	0.50	0.09	0.50	0.80	0.33
95.0	93.6	2.	0.93	0.37	0.97	1.00	0.00	0.50	0.08	0.50	0.25	0.01	0.50	0.50	0.07	0.50	0.50	0.50
94.0	92.4	2.	0.50	0.81	0.93	0.93	0.06	0.00	0.00	0.50	0.26	0.01	0.29	0.50	0.00	0.67	0.50	0.50
93.0	95.6	7.	0.83	0.59	0.91	0.90	0.08	0.00	0.00	0.00	0.33	0.02	0.46	0.50	0.14	0.73	0.89	0.00
92.0	94.8	8.	0.79	0.47	0.85	0.86	0.03	0.50	0.05	0.00	0.33	0.02	1.00	0.50	0.00	1.00	0.89	0.00
91.0	97.9	47.	0.88	0.35	0.85	0.97	0.03	0.50	0.00	0.09	0.36	0.02	1.00	0.50	0.14	1.00	1.00	0.08
90.0	100.2	104.	0.92	0.08	0.96	0.97	0.07	0.07	0.00	0.50	0.90	0.07	0.35	0.50	0.03	0.86	0.86	0.00
89.0	89.3	0.	0.90	0.46	0.86	0.91	0.13	0.10	0.03	0.00	0.63	0.05	0.41	0.50	0.15	0.73	0.87	0.17
88.0	86.8	1.	0.92	0.14	0.95	0.90	0.04	0.11	0.07	0.37	1.00	0.07	0.80	0.26	0.03	0.71	0.42	0.17
87.0	92.4	29.	0.98	0.25	0.80	0.87	0.02	0.50	0.03	0.00	0.44	0.04	1.00	0.50	0.06	1.00	0.89	0.00
86.0	96.3	107.	0.57	0.04	0.89	0.98	0.07	0.50	0.05	0.06	0.45	0.06	0.87	0.50	0.05	1.00	0.94	0.06
85.0	89.2	17.	0.76	0.20	0.83	0.98	0.09	0.60	0.03	0.06	0.45	0.09	0.89	0.50	0.11	0.95	0.90	0.00
84.0	89.7	33.	0.88	0.50	0.86	0.93	0.16	0.11	0.13	0.00	0.59	0.07	0.55	0.50	0.00	0.92	0.86	0.00
83.0	91.1	65.	0.84	0.47	0.86	0.92	0.11	0.06	0.13	0.06	0.58	0.08	0.50	0.80	0.12	0.82	0.82	0.00
82.0	85.2	10.	0.85	0.43	0.86	0.93	0.14	0.18	0.05	0.00	0.62	0.11	0.53	0.50	0.07	0.80	0.95	0.10
81.0	76.8	18.	0.82	0.31	0.89	0.66	0.09	0.50	0.02	0.11	0.48	0.10	0.88	0.50	0.09	0.94	0.89	0.11
80.0	82.9	9.	0.88	0.38	0.82	0.92	0.15	0.13	0.10	0.18	0.59	0.12	0.62	0.75	0.12	0.84	0.79	0.10
79.0	81.0	4.	0.88	0.08	0.87	0.93	0.15	0.13	0.13	0.18	0.88	0.13	0.77	0.90	0.27	0.80	0.78	0.06
78.0	84.3	39.	0.60	0.09	0.90	0.86	0.11	0.17	0.11	0.04	0.46	0.09	0.86	0.40	0.24	0.84	0.88	0.04
77.0	75.6	2.	0.90	0.33	0.77	0.81	0.13	0.17	0.09	0.04	0.59	0.11	0.75	0.50	0.12	0.90	0.78	0.23
76.0	76.3	0.	0.88	0.26	0.86	0.85	0.17	0.06	0.14	0.08	0.69	0.15	0.59	0.86	0.15	0.81	0.78	0.13
75.0	75.0	0.	0.90	0.32	0.81	0.82	0.20	0.10	0.10	0.32	0.75	0.12	0.60	0.70	0.08	0.77	0.84	0.14
74.0	75.9	4.	1.00	0.13	0.86	0.83	0.10	0.00	0.02	0.30	0.89	0.11	0.75	0.52	0.18	0.71	0.54	0.20
73.0	66.4	43.	0.71	0.13	0.83	0.20	0.21	0.33	0.11	0.03	0.82	0.21	0.71	0.71	0.32	0.72	0.85	0.21
72.0	69.9	5.	0.90	0.30	0.71	0.82	0.09	0.50	0.14	0.04	0.55	0.21	0.86	1.00	0.15	0.89	0.85	0.16
71.0	69.8	1.	0.77	0.32	0.78	0.83	0.23	0.09	0.09	0.15	0.76	0.17	0.53	0.75	0.07	0.86	0.72	0.13
70.0	69.6	0.	0.76	0.18	0.85	0.82	0.13	0.14	0.08	0.32	0.87	0.14	0.80	0.60	0.13	0.69	0.50	0.31
69.0	67.8	1.	0.72	0.06	0.80	0.90	0.24	0.17	0.22	0.14	0.86	0.17	0.75	0.86	0.25	0.73	0.79	0.26
68.0	76.9	79.	0.61	0.32	0.79	0.75	0.09	0.40	0.21	0.07	0.56	0.14	0.75	0.90	0.22	0.95	0.88	0.10
67.0	61.2	34.	0.76	0.41	0.82	0.66	0.14	0.20	0.25	0.30	0.59	0.21	0.82	0.65	0.14	0.74	0.79	0.21
66.0	65.4	0.	0.83	0.22	0.70	0.88	0.11	0.50	0.16	0.12	0.56	0.25	1.00	0.83	0.19	0.75	0.84	0.04
65.0	62.4	7.	0.79	0.25	0.75	0.74	0.28	0.25	0.20	0.19	0.69	0.17	0.55	0.94	0.28	0.78	0.80	0.08
64.0	60.0	16.	0.81	0.22	0.79	0.77	0.25	0.00	0.27	0.24	0.79	0.16	0.90	0.70	0.22	0.77	0.54	0.24
63.0	54.7	68.	0.91	0.18	0.79	0.76	0.23	0.42	0.16	0.15	0.94	0.25	0.60	0.75	0.20	0.58	0.70	0.20
62.0	64.2	5.	0.74	0.18	0.69	0.76	0.21	0.31	0.21	0.08	0.63	0.16	0.63	0.93	0.24	0.72	0.74	0.13
61.0	72.4	130.	0.72	0.35	0.81	0.79	0.15	0.20	0.18	0.20	0.59	0.15	0.86	0.88	0.35	0.90	0.79	0.12
60.0	56.9	9.	0.74	0.39	0.72	0.71	0.29	0.21	0.11	0.17	0.67	0.19	0.63	1.00	0.22	0.74	0.82	0.09
59.0	56.1	8.	0.81	0.28	0.81	0.73	0.16	0.13	0.14	0.30	0.68	0.21	0.89	0.57	0.30	0.68	0.52	0.34
58.0	54.6	11.	0.81	0.41	0.81	0.70	0.20	0.17	0.35	0.18	0.66	0.25	0.84	0.67	0.21	0.70	0.68	0.15
57.0	56.9	0.	0.84	0.37	0.73	0.76	0.26	0.17	0.28	0.14	0.71	0.19	0.61	0.68	0.23	0.73	0.61	0.29
56.0	54.1	3.	0.78	0.24	0.72	0.74	0.26	0.40	0.15	0.30	0.63	0.21	0.73	0.80	0.28	0.66	0.74	0.15
55.0	48.1	48.	0.60	0.14	0.67	0.68	0.21	0.22	0.11	0.36	0.60	0.24	0.87	0.67	0.24	0.77	0.51	0.23
54.0	54.0	0.	0.67	0.33	0.74	0.64	0.20	0.18	0.15	0.17	0.59	0.23	0.69	0.79	0.24	0.86	0.73	0.26

53.0	51.2	3.	0.71	0.26	0.70	0.61	0.23	0.11	0.25	0.11	0.63	0.20	0.74	0.86	0.34	0.70	0.64	0.13
52.0	54.1	4.	0.76	0.27	0.73	0.69	0.23	0.14	0.13	0.34	0.70	0.19	0.88	0.67	0.31	0.77	0.80	0.38
51.0	48.9	4.	0.73	0.30	0.78	0.65	0.25	0.30	0.26	0.25	0.54	0.28	0.79	0.83	0.32	0.80	0.81	0.18
50.0	43.3	45.	0.75	0.27	0.71	0.80	0.38	0.30	0.26	0.22	0.85	0.27	0.71	0.67	0.22	0.63	0.64	0.28
49.0	49.9	0.	0.84	0.36	0.67	0.77	0.24	0.26	0.30	0.23	0.80	0.25	0.70	0.58	0.23	0.57	0.65	0.35
48.0	42.5	30.	0.65	0.27	0.81	0.79	0.35	0.14	0.31	0.23	0.77	0.32	0.72	0.67	0.32	0.69	0.63	0.30
47.0	55.2	67.	0.85	0.25	0.67	0.67	0.19	0.19	0.17	0.27	0.81	0.21	0.48	0.60	0.28	0.68	0.76	0.41
46.0	36.2	95.	0.73	0.30	0.71	0.64	0.40	0.17	0.20	0.31	0.72	0.28	0.73	0.57	0.23	0.79	0.75	0.37
45.0	32.0	170.	0.63	0.29	0.62	0.66	0.38	0.23	0.28	0.24	0.75	0.32	0.55	0.69	0.31	0.61	0.61	0.29
44.0	42.3	3.	0.82	0.25	0.71	0.75	0.33	0.17	0.33	0.24	0.68	0.31	0.60	0.74	0.33	0.68	0.60	0.22
43.0	49.6	43.	0.61	0.35	0.72	0.70	0.28	0.23	0.15	0.32	0.48	0.24	0.69	0.82	0.33	0.78	0.68	0.26
42.0	40.8	2.	0.59	0.14	0.67	0.75	0.27	0.25	0.20	0.26	0.62	0.33	0.76	0.55	0.32	0.69	0.67	0.26
41.0	38.8	5.	0.70	0.34	0.70	0.69	0.31	0.29	0.24	0.30	0.80	0.31	0.78	0.59	0.25	0.78	0.65	0.41
40.0	31.2	78.	0.70	0.35	0.52	0.64	0.34	0.26	0.28	0.40	0.75	0.33	0.65	0.65	0.30	0.70	0.66	0.32
39.0	36.6	6.	0.63	0.25	0.69	0.62	0.25	0.24	0.30	0.16	0.66	0.36	0.58	0.61	0.20	0.69	0.66	0.29
38.0	28.8	84.	0.64	0.35	0.67	0.61	0.27	0.40	0.28	0.34	0.68	0.41	0.59	0.60	0.30	0.64	0.57	0.29
37.0	32.9	17.	0.66	0.42	0.52	0.74	0.36	0.29	0.30	0.31	0.62	0.35	0.76	0.59	0.28	0.76	0.67	0.26
36.0	37.3	2.	0.65	0.38	0.72	0.58	0.36	0.45	0.38	0.31	0.59	0.28	0.70	0.69	0.36	0.77	0.59	0.21
35.0	29.5	30.	0.57	0.40	0.55	0.51	0.28	0.33	0.29	0.27	0.63	0.34	0.70	0.62	0.36	0.83	0.75	0.42
34.0	23.9	101.	0.70	0.32	0.68	0.68	0.44	0.22	0.40	0.32	0.69	0.40	0.62	0.64	0.34	0.59	0.63	0.27
33.0	31.3	3.	0.57	0.21	0.61	0.65	0.38	0.27	0.26	0.36	0.56	0.33	0.53	0.66	0.47	0.70	0.65	0.34
32.0	32.6	0.	0.55	0.42	0.60	0.71	0.39	0.30	0.33	0.33	0.59	0.33	0.65	0.56	0.40	0.70	0.68	0.33
31.0	15.3	247.	0.67	0.51	0.57	0.72	0.46	0.22	0.35	0.38	0.60	0.42	0.54	0.74	0.51	0.40	0.55	0.45
30.0	27.6	6.	0.80	0.35	0.63	0.58	0.35	0.31	0.42	0.34	0.57	0.37	0.64	0.63	0.31	0.55	0.71	0.24
29.0	27.4	3.	0.53	0.32	0.59	0.56	0.28	0.28	0.22	0.40	0.64	0.35	0.60	0.65	0.38	0.64	0.60	0.50
28.0	26.8	1.	0.60	0.34	0.64	0.70	0.33	0.41	0.40	0.40	0.60	0.41	0.73	0.62	0.36	0.46	0.65	0.26
27.0	22.4	21.	0.65	0.26	0.69	0.62	0.43	0.34	0.33	0.36	0.60	0.36	0.66	0.66	0.40	0.63	0.59	0.46
26.0	29.8	14.	0.63	0.42	0.66	0.63	0.34	0.38	0.43	0.40	0.68	0.36	0.70	0.55	0.39	0.58	0.65	0.27
25.0	27.9	9.	0.64	0.39	0.55	0.50	0.30	0.33	0.37	0.39	0.58	0.32	0.53	0.70	0.49	0.59	0.62	0.36
24.0	23.1	0.	0.55	0.38	0.62	0.59	0.31	0.33	0.41	0.41	0.58	0.42	0.50	0.59	0.32	0.51	0.58	0.37
23.0	17.5	30.	0.52	0.40	0.64	0.50	0.39	0.25	0.43	0.45	0.57	0.40	0.68	0.67	0.40	0.60	0.56	0.31
22.0	19.7	5.	0.55	0.35	0.49	0.60	0.37	0.41	0.30	0.33	0.60	0.38	0.55	0.61	0.36	0.45	0.50	0.23
21.0	19.2	3.	0.59	0.37	0.63	0.56	0.34	0.31	0.45	0.37	0.71	0.43	0.63	0.57	0.35	0.47	0.69	0.37
20.0	15.6	20.	0.53	0.49	0.52	0.65	0.36	0.35	0.28	0.42	0.52	0.49	0.56	0.72	0.44	0.70	0.56	0.40
19.0	16.3	7.	0.65	0.43	0.56	0.62	0.33	0.55	0.44	0.46	0.53	0.43	0.72	0.52	0.38	0.50	0.48	0.46
18.0	3.9	198.	0.59	0.38	0.48	0.55	0.42	0.26	0.47	0.43	0.53	0.52	0.51	0.73	0.39	0.48	0.58	0.38
17.0	8.0	80.	0.59	0.44	0.57	0.57	0.47	0.35	0.35	0.38	0.59	0.49	0.46	0.46	0.36	0.52	0.73	0.36
16.0	25.9	80.	0.53	0.40	0.51	0.64	0.43	0.52	0.36	0.51	0.49	0.34	0.55	0.51	0.35	0.64	0.67	0.38
15.0	11.2	14.	0.64	0.50	0.52	0.53	0.44	0.28	0.43	0.35	0.48	0.43	0.48	0.58	0.37	0.60	0.69	0.45
14.0	8.8	27.	0.56	0.44	0.59	0.54	0.44	0.53	0.45	0.45	0.43	0.48	0.49	0.65	0.48	0.52	0.61	0.38
13.0	22.0	80.	0.53	0.35	0.63	0.62	0.40	0.44	0.41	0.32	0.52	0.37	0.71	0.67	0.41	0.63	0.54	0.45
12.0	14.3	5.	0.47	0.41	0.61	0.49	0.45	0.35	0.47	0.31	0.56	0.41	0.49	0.68	0.40	0.60	0.58	0.33
11.0	7.2	14.	0.62	0.47	0.59	0.57	0.57	0.38	0.42	0.48	0.66	0.38	0.54	0.53	0.36	0.45	0.48	0.52
10.0	5.5	20.	0.51	0.41	0.60	0.48	0.38	0.41	0.46	0.42	0.55	0.49	0.59	0.53	0.50	0.54	0.47	0.46
9.0	4.4	22.	0.70	0.38	0.46	0.56	0.38	0.45	0.47	0.39	0.51	0.52	0.69	0.38	0.48	0.71	0.56	0.43
8.0	14.5	42.	0.44	0.48	0.54	0.60	0.43	0.41	0.48	0.34	0.47	0.38	0.63	0.50	0.37	0.52	0.45	0.54
7.0	-3.9	119.	0.40	0.39	0.47	0.53	0.53	0.52	0.40	0.30	0.55	0.53	0.54	0.36	0.41	0.67	0.68	0.50
6.0	2.7	11.	0.57	0.50	0.53	0.55	0.43	0.53	0.44	0.41	0.54	0.52	0.45	0.58	0.52	0.49	0.49	0.38
5.0	-19.6	604.	0.58	0.49	0.32	0.51	0.53	0.43	0.61	0.46	0.56	0.62	0.53	0.35	0.38	0.46	0.46	0.56
4.0	16.0	144.	0.54	0.55	0.44	0.62	0.42	0.46	0.49	0.63	0.50	0.39	0.44	0.49	0.41	0.57	0.49	0.57
3.0	-0.3	11.	0.54	0.41	0.54	0.54	0.44	0.50	0.47	0.59	0.49	0.49	0.61	0.56	0.49	0.40	0.44	0.60
2.0	-9.4	129.	0.53	0.52	0.43	0.46	0.51	0.45	0.51	0.46	0.47	0.53	0.61	0.43	0.57	0.46	0.42	0.26
1.0	-1.6	7.	0.46	0.46	0.58	0.50	0.55	0.57	0.48	0.38	0.53	0.48	0.50	0.54	0.49	0.51	0.45	0.47

Variance = 38.8

SCORE TR	SCORE COM	VAR VAR	MINTERM CONDITIONAL PROBABILITIES 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
100.0	104.3	18.	0.50	1.00	0.00	1.00	0.50	0.80	0.93	0.50	1.00	0.80	1.00	0.95	0.00	0.01	0.50	0.50
99.0	114.3	234.	0.50	1.00	0.07	0.86	0.00	0.71	0.93	0.50	0.93	0.63	1.00	0.92	0.00	0.00	0.50	0.50
98.0	4.4	757.	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
97.0	81.0	256.	0.09	0.50	0.00	0.50	0.64	0.50	0.98	0.50	0.72	0.50	1.00	0.98	0.00	0.00	0.50	0.50
96.0	99.7	14.	0.00	0.84	0.00	0.73	0.00	0.00	0.94	0.97	1.00	0.27	0.50	0.96	0.00	0.11	0.45	0.00
95.0	64.9	907.	0.50	1.00	0.00	0.75	0.68	0.00	0.97	1.00	0.70	0.00	0.94	0.97	0.29	0.01	0.00	0.50
94.0	98.7	22.	0.50	1.00	0.00	0.90	0.00	0.08	0.97	0.90	1.00	0.00	0.50	0.96	0.00	0.16	0.33	0.06
93.0	104.9	142.	0.50	0.94	0.05	0.92	0.00	0.54	0.91	1.00	1.00	0.67	0.92	0.91	0.00	0.02	0.00	0.50
92.0	92.7	0.	0.50	1.00	0.03	0.75	0.00	0.00	0.94	0.97	0.93	0.09	0.50	0.93	0.00	0.11	0.37	0.00
91.0	87.8	10.	0.01	0.67	0.00	0.59	0.14	0.42	0.89	0.89	0.95	0.65	0.82	0.88	0.03	0.04	0.11	0.50
90.0	90.8	0.	0.01	0.81	0.06	0.83	0.00	0.48	0.91	0.94	0.85	0.12	0.94	0.87	0.04	0.06	0.00	0.50
89.0	72.5	271.	0.41	0.90	0.03	0.92	0.50	0.13	0.93	1.00	0.68	0.00	0.75	0.94	0.06	0.06	0.00	0.50
88.0	85.3	7.	0.09	0.92	0.26	1.00	0.43	0.54	0.91	1.00	0.89	0.33	0.91	0.94	0.13	0.03	0.00	0.50
87.0	89.8	8.	0.25	0.90	0.06	0.80	0.00	0.50	0.95	0.86	0.93	0.00	0.84	0.87	0.09	0.08	0.14	0.50
86.0	81.5	20.	0.09	0.88	0.07	0.73	0.05	0.40	0.89	0.95	0.95	0.05	0.78	0.84	0.08	0.09	0.04	0.50
85.0	85.5	0.	0.11	0.82	0.08	0.68	0.00	0.36	0.84	1.00	0.82	0.34	0.75	0.88	0.07	0.07	0.00	0.50
84.0	75.1	79.	0.20	0.66	0.17	0.91	0.36	0.00	0.86	1.00	0.74	0.07	0.60	0.88	0.08	0.03	0.11	0.50
83.0	88.0	25.	0.03	0.92	0.24	0.75	0.00	0.35	0.91	0.87	0.94	0.12	0.93	0.84	0.10	0.14	0.06	0.50
82.0	79.3	8.	0.41	0.92	0.13	0.81	0.26	0.04	0.92	0.81	0.82	0.11	0.56	0.89	0.09	0.12	0.15	0.50
81.0	86.3	28.	0.07	0.89	0.02	0.73	0.00	0.16	0.86	0.78	0.84	0.26	0.50	0.87	0.02	0.18	0.35	0.00
80.0	83.9	15.	0.27	0.67	0.13	0.93	0.21	0.00	0.92	1.00	0.79	0.11	1.00	0.88	0.17	0.06	0.21	0.33
79.0	66.3	161.	0.12	0.92	0.16	0.82	0.36	0.06	0.83	0.96	0.71	0.13	0.50	0.87	0.23	0.08	0.03	0.50
78.0	74.4	13.	0.20	0.74	0.10	0.95	0.30	0.26	0.89	0.89	0.67	0.14	0.52	0.88	0.12	0.11	0.09	0.50
77.0	83.5	42.	0.27	0.80	0.08	0.70	0.11	0.00	0.88	0.73	0.94	0.10	0.50	0.56	0.13	0.07	0.48	0.36
76.0	83.9	62.	0.07	0.80	0.33	0.81	0.18	0.12	0.80	0.73	0.77	0.25	0.50	0.89	0.09	0.12	0.00	0.50
75.0	82.7	59.	0.10	0.80	0.18	0.82	0.07	0.29	0.92	0.67	0.95	0.32	0.50	0.78	0.10	0.13	0.09	0.50
74.0	71.6	6.	0.09	0.70	0.11	0.63	0.19	0.23	0.77	0.85	0.85	0.28	0.50	0.85	0.04	0.14	0.00	0.50
73.0	70.7	5.	0.22	0.72	0.09	0.61	0.11	0.03	0.81	0.82	0.91	0.14	0.50	0.83	0.33	0.10	0.33	0.00
72.0	63.9	65.	0.08	0.78	0.12	0.64	0.11	0.17	0.75	0.81	0.82	0.16	0.20	0.79	0.11	0.20	0.30	0.00
71.0	64.2	46.	0.23	0.59	0.23	0.90	0.34	0.32	0.81	0.89	0.78	0.11	0.38	0.80	0.08	0.14	0.21	0.43
70.0	70.8	0.	0.11	0.76	0.28	0.78	0.18	0.09	0.78	0.68	0.83	0.16	0.10	0.83	0.15	0.23	0.36	0.00
69.0	71.9	8.	0.27	0.61	0.13	0.77	0.09	0.14	0.81	0.81	0.75	0.21	0.50	0.84	0.19	0.15	0.14	0.50
68.0	61.5	43.	0.23	0.74	0.18	0.67	0.09	0.23	0.82	0.91	0.80	0.11	0.50	0.74	0.17	0.13	0.12	0.50
67.0	63.7	11.	0.19	0.83	0.14	0.74	0.13	0.18	0.74	1.00	0.77	0.29	0.46	0.75	0.12	0.12	0.28	0.29
66.0	72.6	44.	0.11	0.76	0.29	0.70	0.08	0.36	0.85	1.00	0.89	0.42	0.41	0.77	0.18	0.05	0.11	0.50
65.0	68.2	10.	0.21	0.75	0.10	0.70	0.21	0.21	0.81	0.77	0.80	0.22	0.36	0.84	0.28	0.13	0.35	0.13
64.0	60.8	10.	0.21	0.75	0.19	0.73	0.19	0.40	0.85	0.84	0.76	0.25	0.34	0.79	0.21	0.24	0.20	0.36
63.0	56.4	43.	0.37	0.69	0.23	0.88	0.34	0.17	0.81	0.85	0.66	0.12	0.37	0.78	0.12	0.20	0.15	0.50
62.0	56.9	26.	0.17	0.76	0.17	0.64	0.16	0.08	0.69	0.74	0.86	0.20	0.00	0.78	0.17	0.30	0.32	0.05
61.0	68.0	50.	0.16	0.71	0.26	0.69	0.16	0.43	0.73	0.86	0.80	0.39	0.39	0.81	0.17	0.13	0.26	0.45
60.0	61.6	2.	0.28	0.72	0.15	0.72	0.27	0.21	0.82	0.67	0.63	0.06	0.35	0.83	0.21	0.16	0.19	0.38
59.0	56.5	6.	0.20	0.82	0.24	0.77	0.29	0.34	0.70	0.73	0.77	0.20	0.40	0.75	0.21	0.19	0.07	0.50
58.0	55.8	5.	0.25	0.68	0.22	0.57	0.28	0.11	0.77	0.73	0.72	0.30	0.29	0.79	0.13	0.24	0.39	0.19
57.0	46.0	122.	0.23	0.65	0.19	0.60	0.41	0.17	0.80	0.88	0.70	0.27	0.31	0.78	0.30	0.18	0.20	0.11
56.0	52.2	15.	0.39	0.54	0.27	0.75	0.29	0.22	0.82	0.76	0.64	0.20	0.36	0.78	0.20	0.32	0.25	0.20
55.0	47.9	50.	0.34	0.69	0.29	0.79	0.33	0.26	0.74	0.73	0.65	0.17	0.27	0.75	0.23	0.29	0.18	0.33
54.0	53.6	0.	0.20	0.77	0.29	0.73	0.14	0.28	0.70	0.90	0.71	0.25	0.43	0.68	0.14	0.22	0.17	0.00

53.0	54.8	3.	0.20	0.72	0.20	0.59	0.22	0.21	0.71	0.77	0.83	0.22	0.50	0.74	0.23	0.23	0.19	0.11
52.0	51.4	0.	0.19	0.73	0.25	0.64	0.19	0.16	0.67	0.66	0.81	0.29	0.21	0.72	0.25	0.30	0.25	0.25
51.0	49.3	3.	0.18	0.70	0.30	0.65	0.20	0.26	0.69	0.68	0.70	0.33	0.20	0.72	0.28	0.28	0.33	0.24
50.0	42.1	63.	0.38	0.63	0.32	0.75	0.40	0.22	0.75	0.75	0.64	0.29	0.39	0.68	0.19	0.28	0.32	0.23
49.0	47.6	2.	0.23	0.72	0.34	0.77	0.29	0.19	0.64	0.68	0.65	0.30	0.50	0.68	0.22	0.30	0.19	0.29
48.0	48.0	0.	0.24	0.65	0.28	0.73	0.34	0.23	0.62	0.69	0.63	0.36	0.32	0.73	0.28	0.22	0.29	0.29
47.0	38.9	65.	0.28	0.71	0.24	0.51	0.26	0.33	0.65	0.76	0.67	0.43	0.33	0.70	0.29	0.31	0.26	0.23
46.0	36.1	98.	0.37	0.78	0.34	0.57	0.32	0.29	0.71	0.78	0.70	0.27	0.25	0.68	0.33	0.30	0.23	0.27
45.0	46.7	3.	0.29	0.76	0.41	0.74	0.42	0.26	0.72	0.71	0.68	0.34	0.36	0.73	0.29	0.29	0.38	0.07
44.0	41.0	9.	0.37	0.83	0.32	0.63	0.34	0.23	0.65	0.76	0.59	0.41	0.57	0.68	0.33	0.22	0.28	0.45
43.0	47.6	21.	0.25	0.73	0.31	0.67	0.26	0.22	0.75	0.58	0.62	0.27	0.52	0.69	0.26	0.30	0.21	0.38
42.0	36.8	27.	0.31	0.53	0.20	0.73	0.40	0.29	0.70	0.66	0.65	0.29	0.37	0.69	0.30	0.35	0.26	0.31
41.0	40.5	0.	0.37	0.72	0.21	0.66	0.25	0.23	0.72	0.74	0.62	0.42	0.29	0.70	0.29	0.36	0.32	0.19
40.0	45.0	25.	0.27	0.70	0.32	0.72	0.33	0.23	0.66	0.70	0.69	0.41	0.38	0.70	0.31	0.29	0.23	0.15
39.0	37.5	2.	0.32	0.59	0.34	0.82	0.36	0.26	0.72	0.58	0.53	0.34	0.37	0.61	0.39	0.22	0.23	0.22
38.0	26.8	124.	0.37	0.54	0.40	0.49	0.42	0.23	0.70	0.66	0.53	0.29	0.49	0.64	0.30	0.33	0.31	0.29
37.0	42.9	35.	0.33	0.65	0.31	0.58	0.28	0.21	0.73	0.61	0.74	0.27	0.38	0.66	0.24	0.28	0.41	0.40
36.0	35.3	0.	0.47	0.65	0.28	0.64	0.35	0.34	0.67	0.65	0.72	0.37	0.23	0.66	0.36	0.28	0.26	0.36
35.0	29.5	30.	0.30	0.67	0.23	0.69	0.36	0.39	0.52	0.69	0.72	0.43	0.26	0.62	0.42	0.30	0.43	0.25
34.0	20.7	176.	0.33	0.68	0.28	0.55	0.28	0.37	0.65	0.84	0.67	0.33	0.36	0.56	0.43	0.32	0.30	0.40
33.0	24.8	68.	0.25	0.67	0.33	0.60	0.35	0.25	0.64	0.61	0.61	0.33	0.24	0.58	0.44	0.30	0.40	0.32
32.0	10.7	452.	0.31	0.56	0.33	0.60	0.38	0.41	0.54	0.67	0.63	0.40	0.23	0.47	0.45	0.31	0.36	0.25
31.0	39.3	70.	0.26	0.55	0.39	0.63	0.41	0.31	0.61	0.83	0.60	0.35	0.39	0.74	0.37	0.22	0.24	0.11
30.0	24.4	32.	0.43	0.61	0.31	0.51	0.42	0.29	0.56	0.65	0.57	0.36	0.55	0.65	0.41	0.34	0.30	0.40
29.0	26.3	5.	0.30	0.67	0.36	0.59	0.36	0.34	0.66	0.63	0.63	0.46	0.43	0.63	0.46	0.44	0.34	0.42
28.0	35.3	53.	0.38	0.66	0.40	0.69	0.29	0.37	0.63	0.44	0.58	0.26	0.41	0.65	0.44	0.39	0.36	0.41
27.0	31.6	22.	0.44	0.70	0.42	0.64	0.36	0.33	0.63	0.64	0.56	0.25	0.40	0.68	0.36	0.40	0.33	0.33
26.0	25.8	0.	0.33	0.57	0.38	0.54	0.24	0.32	0.61	0.60	0.72	0.35	0.44	0.58	0.41	0.44	0.26	0.50
25.0	34.4	88.	0.52	0.62	0.34	0.58	0.49	0.34	0.67	0.39	0.57	0.33	0.40	0.68	0.31	0.29	0.27	0.31
24.0	21.0	9.	0.40	0.59	0.44	0.50	0.33	0.36	0.63	0.53	0.68	0.28	0.47	0.55	0.46	0.38	0.30	0.37
23.0	24.8	3.	0.30	0.63	0.42	0.63	0.36	0.31	0.49	0.61	0.67	0.41	0.38	0.60	0.44	0.40	0.31	0.36
22.0	22.5	0.	0.38	0.69	0.46	0.54	0.43	0.44	0.61	0.57	0.65	0.44	0.40	0.56	0.32	0.37	0.33	0.38
21.0	24.8	15.	0.32	0.54	0.31	0.53	0.46	0.35	0.57	0.52	0.60	0.27	0.41	0.69	0.38	0.44	0.31	0.46
20.0	16.6	11.	0.50	0.59	0.36	0.52	0.52	0.46	0.64	0.60	0.55	0.39	0.48	0.63	0.47	0.41	0.35	0.43
19.0	20.7	3.	0.39	0.56	0.32	0.50	0.48	0.46	0.56	0.48	0.53	0.53	0.41	0.65	0.42	0.42	0.42	0.41
18.0	9.3	75.	0.36	0.50	0.45	0.57	0.46	0.53	0.56	0.65	0.49	0.31	0.46	0.56	0.43	0.47	0.38	0.49
17.0	24.1	51.	0.35	0.62	0.30	0.58	0.33	0.38	0.54	0.53	0.48	0.45	0.31	0.64	0.53	0.36	0.49	0.41
16.0	22.1	37.	0.39	0.48	0.45	0.60	0.39	0.30	0.57	0.54	0.51	0.46	0.42	0.62	0.53	0.40	0.43	0.30
15.0	19.2	17.	0.52	0.63	0.43	0.53	0.26	0.41	0.60	0.67	0.54	0.42	0.51	0.57	0.47	0.43	0.38	0.52
14.0	9.2	23.	0.39	0.49	0.47	0.57	0.44	0.39	0.63	0.41	0.46	0.35	0.25	0.51	0.32	0.53	0.42	0.45
13.0	2.7	107.	0.36	0.61	0.44	0.61	0.49	0.52	0.66	0.54	0.48	0.46	0.39	0.45	0.49	0.45	0.31	0.46
12.0	28.7	277.	0.55	0.55	0.48	0.58	0.35	0.45	0.61	0.70	0.58	0.42	0.42	0.71	0.41	0.49	0.46	0.49
11.0	1.6	88.	0.51	0.59	0.45	0.56	0.42	0.48	0.63	0.61	0.52	0.38	0.48	0.45	0.54	0.46	0.39	0.42
10.0	6.0	16.	0.42	0.57	0.48	0.54	0.53	0.53	0.52	0.58	0.48	0.37	0.42	0.55	0.45	0.44	0.39	0.42
9.0	-2.4	131.	0.37	0.50	0.42	0.54	0.44	0.43	0.40	0.49	0.50	0.39	0.49	0.39	0.36	0.44	0.48	0.49
8.0	10.3	5.	0.48	0.60	0.41	0.51	0.40	0.51	0.55	0.54	0.43	0.43	0.50	0.56	0.47	0.50	0.50	0.36
7.0	12.8	34.	0.49	0.56	0.53	0.44	0.42	0.47	0.57	0.43	0.54	0.44	0.46	0.54	0.44	0.46	0.55	0.42
6.0	9.1	9.	0.42	0.43	0.60	0.58	0.50	0.45	0.53	0.49	0.54	0.57	0.45	0.50	0.38	0.51	0.24	0.42
5.0	14.2	84.	0.51	0.47	0.42	0.55	0.58	0.42	0.58	0.49	0.47	0.39	0.44	0.66	0.43	0.52	0.57	0.44
4.0	18.1	198.	0.44	0.45	0.50	0.56	0.41	0.56	0.53	0.39	0.46	0.46	0.42	0.55	0.41	0.38	0.54	0.44
3.0	-0.2	10.	0.48	0.50	0.44	0.45	0.39	0.47	0.49	0.64	0.54	0.49	0.48	0.44	0.44	0.46	0.62	0.45
2.0	12.6	112.	0.47	0.53	0.40	0.60	0.40	0.50	0.33	0.31	0.53	0.54	0.52	0.50	0.46	0.44	0.51	0.40
1.0	21.4	415.	0.56	0.57	0.49	0.52	0.45	0.44	0.51	0.53	0.61	0.66	0.50	0.58	0.40	0.38	0.52	0.31

Variance = 149.4

APPENDIX 23A

PROGRAM FOR A QUADRATIC REGRESSION ANALYSIS

```
      1  *     ARS-68-J0B 8054 - PART 6A  NONLINEAR REGRESSION MODEL
      2  C     TEST ON RANDOM DATA
      3  C     PROGRAM ACCEPTS UP TO 50 ATTRIBUTE MEASURES  FROM MAGPAK GENERATED
      4  C     IN PART 5, EACH WITH        A 6 WORD ARRAY OF DATA MEASURES.
      5        DIMENSION Q(30,30),G(9,50),R(50),PK(50),A(900)
      6        EQUIVALENCE (Q,A)
      7  C     G IS THE INPUT DATA VECTOR, Q IS THE TRANSFORMATION MATRIX
      8  C     CONSTRUCTED FROM THIS DATA VECTOR, PK IS THE VECTOR OF CONSTANTS
      9  C     DERIVED FROM THE DATA VECTOR AND R IS THE VECTOR OF RESULTANT
     10  C     COEFFICIENTS.
     11        READ 1, (NA)
     12        READ 1, (NP)
     13      1 FORMAT (I3)
     14  C     NA = NUMBER OF DATA ELEMENTS IN EACH SCORE.
     15  C     NP= NUMBER OF INDIVIDUAL SCORES (ATTRIBUTES) USED IN TRAINING.
     16        NB = (NA**2 + 3*NA + 2)/2
     17        ANP=NP
     18  C     NB = NUMBER OF UNDETERMINED COEFFICIENTS, HENCE THE NUMBER OF
     19  C     SIMULTANEOUS EQUATIONS.
     20  C     READ INPUT  DATA GENERATED IN PART 5.  THIS DATA CONSISTS OOR EACH
     21  C     ENSEMBLE MEMBER, OF THE ENSEMBLE MEMBER (IENS ), THE DATA MATRIX
     22  C     ((G(I,J),J=1,NP),I=1,9),  AND THE ATTRIBUTE MEASURES (SCORES).
     23  C     PK(J), J=1,NA.
     24        READ 2, IR
     25      2 FORMAT (I7)
     26        IB1=5**9
     27        SM=1.0/(2**23-1)
     28        IENS = 1
     29        DO 905 I=1,NP
     30        IR=IR*IB1
     31        G(1,I)=IR*SM
     32        IR=IR*IB1
     33        G(2,I)=IR*SM
     34        IR=IR*IB1
     35        G(3,I)=IR*SM
     36        IR=IR*IB1
     37        G(4,I)=IR*SM
     38        IR=IR*IB1
     39        G(5,I)=IR*SM
     40        IR=IR*IB1
     41        G(6,I)=IR*SM
     42        R(I)=2. + G(1,I) + 1.5*G(2,I)+2.*G(3,I)+2.5*G(4,I)+3.*G(5,I)
     43       1   +3.5*G(6,I)
     44        DO 3 J=1,NA
     45        DO 3 K=J,NA
     46      3 R(I)=R(I) + G(J,I)*G(K,I)
     47    905 CONTINUE
     48        PRINT 510
     49        PRINT 4
     50      4 FORMAT ( $          INPUT DATA$,/,$      P1          P2          P3
     51       1       P4          P5          P6      SCORE$,/)
     52        DO 9 J=1,NP
     53        PRINT 8,  ((G(I,J), I=1,NA),R(J))
```

```
*    54       8 FORMAT ( 7(4X,F7.3))
*    55       9 CONTINUE
*    56         Q(1,1) = NP
*    57         DO 20 J=1,NA
*    58         L=J+1
*    59         Q(1,L) = 0.0
*    60         DO 21 I=1,NP
*    61        21 Q(1,L) = Q(1,L) + G(J,I)
*    62         Q(L,1) = Q(1,L)
*    63        20 CONTINUE
*    64         DO 30 L=2,NA+1
*    65         DO 31 M=2,NA+1
*    66         Q(L,M) = 0.0
*    67         DO 32 K=1,NP
*    68        32 Q(L,M) = Q(L,M) + G(L-1,K)*G(M-1,K)
*    69        31 CONTINUE
*    70        30 CONTINUE
*    71         IB = 0
*    72         ICT = 1
*    73         DO 41 I=1,NA
*    74         DO 40 J=I,NA
*    75         K = (I-1)*NA - IB + J + NA + 1
*    76         Q(K,1) = Q(I+1, J+1)
*    77         IF (I-J)  600,601,600
*    78       601 Q(1,K)=Q(K,1)
*    79         GO TO 40
*    80       600 Q(1,K)=2.*Q(K,1)
*    81        40 CONTINUE
*    82         IB = IB+ICT
*    83         ICT = ICT + 1
*    84        41 CONTINUE
*    85         DO 50 L=1,NA
*    86         IB = 0
*    87         ICT = 1
*    88         DO 51 M=1,NA
*    89         DO 52 J=M,NA
*    90         LA = (M-1)*NA - IB+J+NA+1
*    91         LB = L+1
*    92         Q(LA,LB ) = 0.
*    93         DO 53 K=1,NP
*    94        53 Q(LA,LB ) = Q(LA,LB ) + G(L,K)*G(M,K)*G(J,K)
*    95       603 Q(LB ,LA) = Q(LA,LB )
*    96        52 CONTINUE
*    97         IB = IB+ICT
*    98         ICT = ICT+1
*    99        51 CONTINUE
*   100        50 CONTINUE
*   101         IB1 = 0
*   102         ICT1 = 1
*   103         DO 60 L=1,NA
*   104         DO 61 M=L,NA
*   105         IB = 0
*   106         ICT = 1
*   107         DO 62 I=1,NA
```

```
*   108          DO 63 J=1,NA
*   109          LB = NA+1+(L-1)*NA-IB1+M
*   110          LA = NA+1+(I-1)*NA -IB+J
*   111          Q(LB,LA) = 0.0
*   112          DO 64, K=1,NP
*   113       64 Q(LB,LA) = Q(LB,LA)+G(L,K)*G(M,K)*G(I,K)*G(J,K)
*   114          Q(LA,LB) = Q(LB,LA)
*   115       63 CONTINUE
*   116          IB = IB+ICT
*   117          ICT = ICT+1
*   118       62 CONTINUE
*   119       61 CONTINUE
*   120          IB1 = IB1+ICT1
*   121          ICT1 = ICT1+1
*   122       60 CONTINUE
*   123          DO 605 I=2,NB
*   124          IB=0
*   125          ICT=1
*   126          DO 607 M=1,NA-1
*   127          IS=ICT + ICT*NA + 2 *IB
*   128          IST=IS+NA-ICT-1
*   129          DO 606 K=IS,IST
*   130       606 Q(I,K)=2.0*Q(I,K)
*   131          IB=IB+ICT
*   132          ICT=ICT+1
*   133       607 CONTINUE
*   134       605 CONTINUE
*   135          PK(1) = 0.0
*   136          DO 70, I=1,NP
*   137       70 PK(1) = R(I)*PK(1)
*   138          DO 71 J=2,NA+1
*   139          PK(J) = 0.0
*   140          DO 72 I=1,NP
*   141       72 PK(J) = PK(J) + R(I)*G(J-1,I)
*   142       71 CONTINUE
*   143          IB = 0
*   144          ICT = 1
*   145          DO 76 J=1,NA
*   146          DO 75 K=J,NA
*   147          LA = (J-1)*NA-IB+K+NA+1
*   148          PK(LA) = 0.0
*   149          DO 77, I=1,NP
*   150       77 PK(LA) = PK(LA) + R(I)*G(K,I)*G(J,I)
*   151       75 CONTINUE
*   152          IB = IB+ICT
*   153          ICT = ICT+1
*   154       76 CONTINUE
*   155          PRINT 510
*   156          PRINT 78
*   157       78 FORMAT ($          KNOWN LHS COEFFICIENTS$)
*   158          PRINT 101, ((I,PK(I)),I=1,NB)
*   159      101 FORMAT (10X,I5,10X,E14.6)
*   160          PRINT 79
*   161       79 FORMAT ($       COEFFICIENT MATRIX$)
```

```
*   162          L=NB/2
*   163          DO 54 K=1,2
*   164          DO 54 M=1,2
*   165          PRINT 510
*   166          DO 55 I=(K-1)*L + 1,K*L
*   167          PRINT 47, (G(I,J),J=(M-1)*L + 1, M*L)
*   168       47 FORMAT (5X,14(1X,F6.1))
*   169       55 CONTINUE
*   170       54 CONTINUE
*   171          DO 46 K=1,NB
*   172          DO 45 I=1,NB
*   173          J = (K-1)*NB + I
*   174       45 A(J) = G(I,K)
*   175       46 CONTINUE
*   176    C     SOLVE THE SET OF NB LINEAR EQUATIONS BY ELIMINATION, USING
*   177    C     THE LARGEST PIVOTAL DIVISOR.
*   178    C     ADAPTED FROM 360C SCIENTIFIC SUBROUTINE SIMQ
*   179    C     FORWARD SOLUTION
*   180          TOL = 0.0
*   181          KS = 0
*   182          JJ = -NB
*   183          DO 166, J=1,NB
*   184          JY = J+1
*   185          JJ = JJ + NB+1
*   186          BIGA = 0.0
*   187          IT = JJ - J
*   188          DO 130, I=J,NB
*   189    C     SEARCH FOR MAXIMUM COEFFICIENT IN COLUMN
*   190          IJ = IT+I
*   191          IF (ABS(BIGA) - ABS(A(IJ))) 120,130,130
*   192      120 BIGA = A(IJ)
*   193          IMAX = I
*   194      130 CONTINUE
*   195    C     TEST FOR PIVOT LESS THAN DIFFERENCE
*   196          IF (ABS(BIGA) - TOL) 135,135,140
*   197      135 KS = 1
*   198          STOP
*   199    C     INTERCHANGE ROWS IF NECESSARY
*   200      140 I1=J+ NB*(J-2)
*   201          IT = IMAX-J
*   202          DO 150, K=J,NB
*   203          I1 = I1 + NB
*   204          I2 = I1 + IT
*   205          SAVE = A(I1)
*   206          A(I1) = A(I2)
*   207          A(I2) = SAVE
*   208    C     DIVIDE EQUATION BY LEADING COEFFICIENT
*   209      150 A(I1) = A(I1)/BIGA
*   210          SAVE = PK(IMAX)
*   211          PK(IMAX) = PK(J)
*   212          PK(J) = SAVE/BIGA
*   213    C     ELIMINATE NEXT VARIABLE
*   214          IF (J-NB) 155,170,155
*   215      155 IQS = NB*(J-1)
```

```
      DO 165, IX = JY,NB
      IXJ = IGS+IX
      IT = J-IX
      DO 160 JX=JY,NB
      IXJX = NB*(JX-1) + IX
      JJX = IXJX + IT
  160 A(IXJX) = A(IXJX) - A(IXJ)*A(JJX)
  165 PK(IX) = PK(IX) - PK(J)*A(IXJ)
  166 CONTINUE
C     BACK SOLUTION
  170 NY = NB-1
      IT = NB*NB
      DO 180, J=1,NY
      IL = IT-J
      IM = NB-J
      IC = NB
      DO 180 K=1,J
      PK(IM) = PK(IM) - A(IL)*PK(IC)
      IL = IL-NB
  180 IC = IC-1
C     PRINT VARIABLES
      PRINT 510
      PRINT 80
   80 FORMAT ($       SOLUTION TO UNKNOWN COEFFICIENTS*)
      DO 515 I=1,NB
  515 PRINT 516, (I,PK(I))
  516 FORMAT (15X,I8,10X,E16.7)
C     PK(I) I=1,2,3,....  NB    NOW CONTAINS THE DESIRED COEFFICIENTS
      WRITE TAPE 5, (PK(I),I=1,NB)
      PRINT 510
      PRINT 81
   81 FORMAT ($       TEST OF QUADRATIC REGRESSION MODEL*)
      PRINT 82
   82 FORMAT ($    DATA NUMBER    TRUE VALUE    COMPUTED VALUE    ERROR*
     1)
      VAR=0.0
      DO 380 M=1,NP
      AE=PK(1)
      DO 376 I=2,NA+1
  376 AE=G(I-1,M)*PK(I) + AE
      IB=0
      ICT=1
      DO 378 I=1,NA
      DO 379 J=I,NA
      K=I*NA + J -IB + 1
      IF (I-J) 630, 631,630
  631 AE= AE+ G(I,M)*G(J,M)*PK(K)
      GO TO 379
  630 AE=AE + 2.*G(I,M)*G(J,M)*PK(K)
  379 CONTINUE
      IB=IB+ICT
  378 ICT=ICT+1
      ERR=R(M)-AE
      VAR=VAR+ERR*ERR
```

```
      PRINT 381,  (M,R(M),AE,ERR)
  381 FORMAT  (10X,I5,3(10X,F10.4))
  380 CONTINUE
      VAR=VAR/ANP
      PRINT 87, VAR
   87 FORMAT (//,$        VARIANCE=    $, F10.4)
  510 FORMAT (1H1)
      END
```

PROGRAM ALLOCATION

00031 Q	00031 A	03441 G	05245 R
05411 PK	05555 NA	05556 NP	05557 NB
05560 IR	05561 I81	05562 IENS	05563 I
05564 J	05565 K	05566 L	05567 M
05570 IB	05571 ICT	05572 LA	05573 LB
05574 ICT1	05575 IS	05576 IST	05577 KS
05600 JJ	05601 JY	05602 IT	05603 IJ
05604 IMAX	05605 I1	05606 I2	05607 IQS
05610 IX	05611 IXJ	05612 JX	05613 IXJX
05614 JJX	05615 NY	05616 IL	05617 IM
05620 IC	05621 ANP	05623 SM	05625 TOL
05627 BIGA	05631 SAVE	05633 VAR	05635 AE
05637 ERR			

SUBPROGRAMS REQUIRED

ABS

APPENDIX 23B

ELEMENTS OF THE Q MATRIX DERIVED FROM THE DATA SHOWN IN TABLE XX IN TEXT

50.0	-0.1	-11.4	-3.8	3.2	-1.4	-4.6	17.7	1.7	0.9	-4.8	-2.0	-8.3	21.4
-0.1	17.7	0.9	0.5	-2.4	-1.0	-4.1	0.2	-13.9	-2.8	2.9	-1.4	-2.1	-2.3
-11.4	0.9	21.4	2.5	-4.2	1.4	-1.1	-6.9	-4.6	0.1	3.8	-0.8	2.0	-8.8
-3.8	0.5	2.5	16.7	1.2	-1.5	-2.3	-1.4	0.1	2.2	0.6	-1.2	-1.5	-4.8
3.2	-2.4	-4.2	1.2	15.7	3.3	1.6	1.5	3.8	0.6	-1.3	1.1	0.8	0.7
-1.4	-1.0	1.4	-1.5	3.3	14.0	-2.6	-0.7	-0.8	-1.2	1.1	2.0	4.0	-1.4
-4.6	-4.1	-1.1	-2.3	1.6	-2.6	17.6	-1.0	2.0	-1.5	0.8	4.0	3.3	0.5
17.7	0.2	-6.9	-1.4	1.5	-0.7	-1.0	10.8	1.1	1.7	-3.1	-2.7	-5.4	8.0
0.9	-6.9	-2.3	0.0	1.9	-0.4	1.0	0.6	16.0	4.5	-3.0	2.3	-1.1	0.8
0.5	-1.4	0.0	1.1	0.3	-0.6	-0.8	0.8	4.5	10.5	-0.8	-0.5	-2.4	-0.6
-2.4	1.5	1.9	0.3	-0.6	0.5	0.4	-1.6	-3.0	-0.8	10.7	4.4	-1.4	-0.9
-1.0	-0.7	-0.4	-0.6	0.5	1.0	2.0	-1.4	2.3	-0.5	4.4	11.2	-2.4	0.3
-4.1	-1.0	1.0	-0.8	0.4	2.0	1.6	-2.7	-1.1	-2.4	-1.4	-2.4	14.7	-0.9
21.4	-2.3	-8.8	-4.8	0.7	-1.4	0.5	8.0	1.5	-1.2	-1.7	0.6	-1.9	13.9

5.0	-8.4	2.9	-2.1	16.7	2.4	-3.0	-4.7	15.7	6.6	3.2	14.0	-5.2	17.6
0.1	3.8	-0.8	2.0	1.1	0.6	-1.2	-1.5	-0.6	1.1	0.8	1.0	4.0	1.6
-9.6	1.4	-2.8	1.1	-3.7	-0.1	0.3	3.7	-4.7	-3.5	-3.3	-5.6	1.1	-5.6
-7.4	-0.1	0.3	3.7	-1.7	2.4	-4.8	-6.6	-1.1	-4.9	-3.4	-1.6	0.3	-0.7
-0.1	-9.4	-3.5	-3.3	1.2	-2.3	-4.9	-3.4	1.2	-1.0	-4.6	2.1	1.8	0.0
0.3	-3.5	-11.3	1.1	-2.4	-4.9	-3.1	0.3	-0.5	4.3	1.8	0.5	-1.8	-0.2
3.7	-3.3	1.1	-11.1	-3.3	-3.4	0.3	-1.4	-2.3	1.8	0.0	-0.9	-0.5	-4.0
4.5	-3.0	2.3	-1.1	5.3	-0.8	-0.5	-2.4	5.4	4.4	-1.4	5.6	-2.4	7.3
-1.2	-1.7	0.6	-1.9	-0.0	-0.5	-0.1	-3.8	0.0	-1.2	-0.5	0.4	-2.7	-1.3
-0.0	-0.5	-0.1	-3.8	0.1	-1.9	-2.5	-3.3	0.0	-0.5	0.6	0.2	0.2	-0.8
-0.5	0.2	-1.2	-0.5	-0.9	0.1	-0.5	0.6	-1.3	0.7	-1.9	-0.9	2.5	0.2
-0.1	-1.2	0.9	-2.7	-1.2	-0.5	0.3	0.2	0.4	-1.9	2.5	0.3	-1.8	-0.8
-3.8	-0.5	-2.7	-2.6	-1.7	0.6	0.2	-1.6	-1.0	2.5	0.3	-0.9	-1.5	-2.3
4.8	-7.1	2.0	-3.2	7.0	1.1	0.7	-0.6	7.9	5.1	3.0	5.8	-1.9	7.4

2.5	0.0	-4.8	-3.7	-0.0	0.1	1.9	2.3	-1.2	-0.0	-0.5	-0.1	-3.8	2.4
-4.2	1.9	0.7	-C.0	-4.7	-1.8	-1.7	-1.5	-1.7	-0.5	0.2	-1.2	-0.5	-3.5
1.4	-0.4	-1.4	0.1	-1.8	-5.6	C.5	1.2	C.6	-0.1	-1.2	0.9	-2.7	1.0
-1.1	1.0	0.5	1.9	-1.7	0.5	-5.6	-0.5	-1.9	-3.8	-0.5	-2.7	-2.6	-1.6
16.7	1.1	-3.7	-1.7	1.2	-2.4	-3.3	5.3	-0.0	0.3	-1.9	-2.5	-3.3	7.0
1.2	0.3	-0.0	1.2	-1.1	-2.5	-1.7	-0.4	-0.5	-1.9	0.1	-0.5	0.6	0.5
-1.5	-0.6	0.1	-2.4	-2.5	-1.6	0.2	-0.3	-0.1	-2.5	-0.5	0.3	0.2	0.4
-2.3	-0.8	1.9	-3.3	-1.7	0.2	-0.7	-1.2	-3.8	-3.3	0.6	0.2	-1.6	-0.3
15.7	-0.6	-4.7	-1.1	1.2	-0.5	-2.3	5.4	0.2	0.1	-2.6	0.7	-1.9	7.9
3.3	0.5	-1.8	-2.5	-0.5	2.1	C.9	2.2	-1.2	-0.5	0.7	-1.9	2.5	2.6
1.6	0.4	-1.7	-1.7	-2.3	0.9	0.0	-0.7	-0.5	0.6	-1.9	2.5	0.3	1.5
14.0	1.0	-5.6	-1.6	2.1	0.5	-C.9	5.6	0.9	0.3	-1.9	0.5	-1.8	5.8
-2.6	2.0	0.5	0.2	0.9	-0.9	-0.2	-1.2	-2.7	0.2	2.5	-1.8	-1.5	-1.0
17.6	1.6	-5.6	-0.7	0.0	-0.2	-4.0	7.3	-2.6	-1.6	0.3	-1.5	-4.5	7.4

13.9	1.1	C.7	-0.6	1.3	-2.3	-0.4	1.9	1.3	2.7	1.6	1.2	2.6	1.0
1.1	15.8	5.1	3.0	-1.2	2.6	2.7	1.6	-1.8	2.1	-1.6	-1.1	-1.1	-1.3
0.7	5.1	11.6	-1.9	-0.2	2.7	2.5	2.6	1.1	-2.2	-1.1	0.5	-2.6	0.5
-0.6	3.0	-1.9	14.9	1.0	1.6	2.6	1.9	-0.8	-1.1	-2.7	-1.3	0.9	0.4
2.5	-2.3	-0.4	1.9	9.5	2.5	-1.1	-2.8	5.1	2.0	0.5	4.5	1.5	5.9
-2.3	2.6	2.7	1.6	1.2	10.2	2.0	0.5	1.2	-1.4	-0.6	0.3	-1.2	0.6
-0.4	2.7	2.5	2.6	-0.5	2.0	9.1	1.5	-0.7	0.6	-1.2	-1.8	-1.4	-0.3
1.9	1.6	2.6	1.9	-1.4	0.5	1.5	11.9	-0.3	-1.2	1.1	-0.7	-0.5	-0.9
2.6	-3.5	2.1	-1.6	5.1	2.4	-1.4	-0.6	9.0	3.6	3.2	4.9	-0.2	5.5
2.7	2.1	-2.2	-1.1	1.0	-1.4	0.6	-1.2	1.8	9.8	-0.2	1.5	1.5	0.7
1.6	-1.6	-1.1	-2.7	0.3	-0.6	-1.2	1.1	1.6	-0.2	11.1	0.7	1.4	0.9
2.5	-2.2	1.0	-2.6	4.5	0.6	-3.6	-1.4	4.9	3.1	1.5	7.0	-3.1	5.2
2.6	-1.1	-2.6	0.9	0.7	-1.2	-1.4	-0.5	-0.1	1.5	1.4	-1.6	10.3	-1.4
1.9	-2.7	0.9	0.9	5.9	1.1	-0.5	-1.9	5.5	1.4	1.8	5.2	-2.7	11.0

APPENDIX 24

PROGRAM FOR EVALUATING THE QUADRATIC REGRESSION MODEL WITH NOISY SCORE VALUES

```
      *     ARS-68-JOB 8054 - PART 6B  NONLINEAR REGRESSION MODEL
      C     TEST ON RANDOM DATA  WITH NOISE ADDED TO FUNCTIONALLY CALCULATED
      C     SCORE.
      C     PROGRAM ACCEPTS UP TO 50 ATTRIBUTE MEASURES  FROM MAGPAK GENERATED
      C     IN PART 5, EACH WITH        A 6 WORD ARRAY OF DATA MEASURES.
            DIMENSION G(30,30),G(6,50),R(50),PK(50),A(900),R1(50)
            EQUIVALENCE (G,A)
      C     G IS THE INPUT DATA VECTOR, G IS THE TRANSFORMATION MATRIX
      C     CONSTRUCTED FROM THIS DATA VECTOR, PK IS THE VECTOR OF CONSTANTS
      C     DERIVED FROM THE DATA VECTOR AND R IS THE VECTOR OF RESULTANT
      C     COEFFICIENTS.
            READ 1, (NA)
            READ 1, (NP)
          1 FORMAT (I3)
      C     NA = NUMBER OF DATA ELEMENTS IN EACH SCORE.
      C     NP= NUMBER OF INDIVIDUAL SCORES (ATTRIBUTES) USED IN TRAINING.
            NB = (NA**2 + 3*NA + 2)/2
            ANP=NP
      C     NB = NUMBER OF UNDETERMINED COEFFICIENTS, HENCE THE NUMBER OF
      C     SIMULTANEOUS EQUATIONS.
      C     READ INPUT  DATA GENERATED IN PART 5.  THIS DATA CONSISTS OOR EACH
      C     ENSEMBLE MEMBER, OF THE ENSEMBLE MEMBER (IENS ), THE DATA MATRIX
      C     ((G(I,J),J=1,NP),I=1,9),  AND THE ATTRIBUTE MEASURES (SCORES).
      C     PK(J), J=1,NA.
            READ 2, IR
          2 FORMAT (I7)
            IB1=5**9
            SM=1.0/(2**23-1)
            IENS = 1
            DO 6000 IBG=1,5
            SIGMA=0.1*IBG
            DO 4000 MBG=1,10
            DO 905 I=1,NP
            IR=IR*IB1
            G(1,I)=IR*SM
            IR=IR*IB1
            G(2,I)=IR*SM
            IR=IR*IB1
            G(3,I)=IR*SM
            IR=IR*IB1
            G(4,I)=IR*SM
            IR=IR*IB1
            G(5,I)=IR*SM
            IR=IR*IB1
            G(6,I)=IR*SM
            R1(I)=2.+ G(1,I) + 1.5*G(2,I)+2.*G(3,I)+2.5*G(4,I)+3.*G(5,I)
           1   +3.5*G(6,I)
            DO 3 J=1,NA
            DO 3 K=J,NA
          3 R1(I)=R1(I)+G(J,I)*G(K,I)
      C     GENERAT  GAUSSION NOISE WITH STANDATD DEVIATION SIGMA
      C     AND ADD IT TO R1(I) TO OBTAION THE NOISE CORRUPTED SCORE VALUE R(I
            SUN =0.
```

```
*     54          DO 33 K=1,12
*     55          IR=IR*IM1
*     56     33   SBN = SBN+IR*SM*0.5
*     57          PK(I)=SBN*SIGMA
*     58          R(I)=PK(I) + R1(I)
*     59      905 CONTINUE
*     60          PRINT 910
*     61          PRINT 4
*     62        4 FORMAT ( $           INPUT DATA$,//,4       P1          P2          P3
*     63         1       P4          P5          P6        SCORE       NOISE       S + N
*     64         2$,/)
*     65          DO 9 J=1,NP
*     66          PRINT 6,  ((G(I,J), I=1,NA),R1(J),PK(J),R(J))
*     67        6 FORMAT ( 9(4X,F7.3))
*     68        9 CONTINUE
*     69          G(1,1) = NP
*     70          DO 20 J=1,NA
*     71          L=J+1
*     72          G(1,L) = 0.0
*     73          DO 21 I=1,NP
*     74       21 G(1,L) = G(1,L) + G(J,I)
*     75          G(L,1) = G(1,L)
*     76       20 CONTINUE
*     77          DO 30 L=2,NA+1
*     78          DO 31 M=2,NA+1
*     79          G(L,M) = 0.0
*     80          DO 32 K=1,NP
*     81       32 G(L,M) = G(L,M) + G(L-1,K)*G(M-1,K)
*     82       31 CONTINUE
*     83       30 CONTINUE
*     84          IB = 0
*     85          ICT = 1
*     86          DO 41 I=1,NA
*     87          DO 40 J=I,NA
*     88          K = (I-1)*NA - IB + J + NA + 1
*     89          G(K,1) = G(I+1, J+1)
*     90          IF (I-J)  600,601,600
*     91      601 G(1,K)=G(K,1)
*     92          GO TO 40
*     93      600 G(1,K)=SQRT(G(K,1))
*     94       40 CONTINUE
*     95          IB = IB+ICT
*     96          ICT = ICT + 1
*     97       41 CONTINUE
*     98          DO 50 L=1,NA
*     99          IB = 0
*    100          ICT = 1
*    101          DO 51 M=1,NA
*    102          DO 52 J=M,NA
*    103          LA = (M-1)*NA - IB+J+NA+1
*    104          LB = L+1
*    105          G(LA,LB ) = 0.
*    106          DO 53 K=1,NP
*    107       53 G(LA,LB ) = G(LA,LB ) + G(L,K)*G(M,K)*G(J,K)
```

```
*   108     605 G(LB,LA) = G(LA,LB)
*   109      52 CONTINUE
*   110         IB = IB+ICT
*   111         ICT = ICT+1
*   112      51 CONTINUE
*   113      50 CONTINUE
*   114         IB1 = 0
*   115         ICT1 = 1
*   116         DO 60 L=1,NA
*   117         DO 61 M=L,NA
*   118         IB = 0
*   119         ICT = 1
*   120         DO 62 I=1,NA
*   121         DO 63 J=I,NA
*   122         LB = NA+1+(L-1)*NA-IB1+M
*   123         LA = NA+1+(I-1)*NA -IB+J
*   124         G(LB,LA) = 0.0
*   125         DO 64, K=1,NP
*   126      64 G(LB,LA) = G(LB,LA)+G(L,K)*G(M,K)*G(I,K)*G(J,K)
*   127         G(LA,LB) = G(LB,LA)
*   128      63 CONTINUE
*   129         IB = IB+ICT
*   130         ICT = ICT+1
*   131      62 CONTINUE
*   132      61 CONTINUE
*   133         IB1 = IB1+ICT1
*   134         ICT1 = ICT1+1
*   135      60 CONTINUE
*   136         DO 605 I=2,NB
*   137         IB=0
*   138         ICT=1
*   139         DO 607 M=1,NA-1
*   140         IS=ICT + ICT*NA + 2 -IB
*   141         IST=IS+NA-ICT-1
*   142         DO 606 K=IS,IST
*   143     606 G(I,K)=2.0*G(I,K)
*   144         IB=IS+ICT
*   145         ICT=ICT+1
*   146     607 CONTINUE
*   147     605 CONTINUE
*   148         PK(1) = 0.0
*   149         DO 70, I=1,NP
*   150      70 PK(1) = R(I)+PK(1)
*   151         DO 71 J=2,NA+1
*   152         PK(J) = 0.0
*   153         DO 72 I=1,NP
*   154      72 PK(J) = PK(J) + R(I)*G(J-1,I)
*   155      71 CONTINUE
*   156         IB = 0
*   157         ICT = 1
*   158         DO 76 J=1,NA
*   159         DO 75 K=J,NA
*   160         LA = (J-1)*NA-IB+K+NA+1
*   161         PK(LA) = 0.0
```

```
*   162          DO 77, I=1,NP
*   163       77 PK(LA) = PK(LA) + R(I)*G(K,I)*S(J,I)
*   164       78 CONTINUE
*   165          IB = IB+ICT
*   166          ICT = ICT+1
*   167       79 CONTINUE
*   168          PRINT 510
*   169          PRINT 519, SIGMA
*   170      519 FORMAT (10X,7HSIGMA = ,F8.5,///)
*   171          PRINT 78
*   172       78 FORMAT (5X,        KNOWN LHS COEFFICIENTS,/)
*   173          PRINT 101, ((I,PK(I)),I=1,NB)
*   174      101 FORMAT (10X,I5,10X,F14.6)
*   175          PRINT 79
*   176       79 FORMAT (5X,       COEFFICIENT MATRIX)
*   177          L=NB/2
*   178          DO 54 K=1,2
*   179          DO 54 M=1,2
*   180          PRINT 510
*   181          DO 55 I=(K-1)*L + 1,K*L
*   182          PRINT 47, (G(I,J),J=(M-1)*L + 1,M*L)
*   183       47 FORMAT (5X,14(1X,F6.1))
*   184       55 CONTINUE
*   185       54 CONTINUE
*   186          DO 46 K=1,NB
*   187          DO 45 I=1,NB
*   188          J = (K-1)*NB + I
*   189       45 A(J) = G(I,K)
*   190       46 CONTINUE
*   191    C     SOLVE THE SET OF NB LINEAR EQUATIONS BY ELIMINATION, USEING
*   192    C     THE LARGEST PIVETAL DIVISOR.
*   193    C     ADAPTED FROM 360 SCIENTIFIC SUBROUTINE SIMQ
*   194    C     FORWARD SOLUTION
*   195          TOL = 0.0
*   196          KS = 0
*   197          JJ = -NB
*   198          DO 166, J=1,NB
*   199          JY = J+1
*   200          JJ = JJ + NB+1
*   201          BIGA = 0.0
*   202          IT = JJ - J
*   203          DO 130, I=J,NB
*   204    C     SEARCH FOR MAXIMUM COEFFICIENT IN COLUMN
*   205          IJ = IT+I
*   206          IF (ABS(BIGA) - ABS(A(IJ))) 120,130,130
*   207      120 BIGA = A(IJ)
*   208          IMAX = I
*   209      130 CONTINUE
*   210    C     TEST FOR PIVOT LESS THAN DIFFERENCE
*   211          IF (ABS(BIGA) - TOL) 135,135,140
*   212      135 KS = 1
*   213          STOP
*   214    C     INTERCHANGE ROWS IF NECESSARY
*   215      140 I1=J+ NB*(J-2)
```

```
      IT = IMAX-J
      DO 150, K=J,NB
      I1 = I1 + NB
      I2 = I1 + IT
      SAVE = A[I1]
      A[I1] = A[I2]
      A[I2] = SAVE
C     DIVIDE EQUATION BY LEADING COEFFICIENT
  150 A[I1] = A[I1]/BIGA
      SAVE = PK[IMAX]
      PK[IMAX] = PK[J]
      PK[J] = SAVE/BIGA
C     ELIMINATE NEXT VARIABLE
      IF (J-NB) 155,170,155
  155 IOS = NB*(J-1)
      DO 165, IX = JY,NB
      IXJ = IOS+IX
      IT = J-IX
      DO 160 JX=JY,NB
      IXJX = NB*(JX-1) + IX
      JJX = IXJX + IT
  160 A[IXJX] = A[IXJX] - A[IXJ]*A[JJX]
  165 PK[IX] = PK[IX] - PK[J]*A[IXJ]
  166 CONTINUE
C     BACK SOLUTION
  170 NY = NB-1
      IT = NB*NB
      DO 180, J=1,NY
      IL = IT-J
      IM = NB-J
      IC = NB
      DO 180 K=1,J
      PK[IM] = PK[IM] - A[IL]*PK[IC]
      IL = IL-NB
  180 IC = IC-1
C     PRINT VARIABLES
      PRINT 510
      PRINT 80
   80 FORMAT (5X,'SOLUTION TO UNKNOWN COEFFICIENTS')
      DO 515 I=1,NB
  515 PRINT 516, (I,PK[I])
  516 FORMAT (15X,I8,10X,E16.7)
C     PK(I) I=1,2,3,.... NB    NOW CONTAINS THE DESIRED COEFFICIENTS
      PRINT 510
      PRINT 81
   81 FORMAT (5X,'TEST OF QUADRATIC REGRESSION MODEL')
      PRINT 82
   82 FORMAT (5X,'DATA NUMBER',10X,'TRUE VALUE',10X,'NOISY INPUT
     1',10X,'COMPUTED VALUE',10X,'ERROR',/,
     2'0',30X,'(NOISELESS)',
     3'(NOISELESS-COMPUTED)',/)
      VAR=0.0
      DO 340 M=1,NP
      AE=PK(1)
```

```
*   270         DO 376 I=2,NA+1
*   271     376 AE=G[I-1,M]*PK[I] + AE
*   272         IB=0
*   273         ICT=1
*   274         DO 378 I=1,NA
*   275         DO 379 J=I,NA
*   276         K=I*NA + J -IB + 1
*   277         IF (I-J) 630,631,630
*   278     631 AE= AE+ G[I,M]*G[J,M]*PK[K]
*   279         GO TO 379
*   280     630 AE=AE + 2.*G[I,M]*G[J,M]*PK[K]
*   281     379 CONTINUE
*   282         IB=IB+ICT
*   283     378 ICT=ICT+1
*   284         ERR=R[M]-AE
*   285         VAR=VAR+ERR*ERR
*   286         PRINT 381,   (M,R1[M],R[M],AE,ERR)
*   287     381 FORMAT   (10X,I5,4(10X,F10.4))
*   288     380 CONTINUE
*   289         VAR=VAR/ANP
*   290         PRINT 87, VAR
*   291      87 FORMAT (///,5          VARIANCE=    ,F10.4)
*   292    4000 CONTINUE
*   293    6000 CONTINUE
*   294     510 FORMAT (1H1)
*   295         END
```

PROGRAM ALLOCATION

00031	Q	00031	A	03441	G	04571	R
04735	PK	05101	R1	05245	NA	05246	NP
05247	NB	05250	IR	05251	IB1	05252	IERS
05253	IBG	05254	MBB	05255	I	05256	J
05257	K	05260	L	05261	M	05262	IB
05263	ICT	05264	LA	05265	LB	05266	ICT1
05267	IS	05270	IST	05271	KS	05272	JJ
05273	JY	05274	IT	05275	IJ	05276	IMAX
05277	I1	05300	I2	05301	IGS	05302	IX
05303	IXJ	05304	JX	05305	IXJX	05306	JJX
05307	NY	05310	IL	05311	IM	05312	IC
05313	ANP	05315	SM	05317	SIGMA	05321	SBA
05323	TOL	05325	BIGA	05327	SAVE	05331	VAR
05333	AE	05335	ERR				

SUBPROGRAMS REQUIRED

ABS

APPENDIX 25

SOURCE DATA AND RESULTS FOR A QUADRATIC REGRESSION ANALYSIS - SIGMA = 0.1

FACTOR DATA						SCORE	RISK	
	P2	P3	P4	P5	P6			
		.145	0.253		-0.167	2.187	0.010	2.197
		-0.168	0.916		-0.504	5.850	0.015	5.865
		-0.131	-0.111	-0.137	-0.175	1.609	-0.038	1.570
		0.577	0.883	-0.166	-0.289	7.167	-0.015	7.152
		-0.526	0.620	0.180	-0.030	2.964	-0.007	2.957
		0.719	0.818	-0.937	0.261	3.517	-0.089	3.428
		0.246	0.595	-0.593	0.938	5.439	-0.086	5.353
		-0.515	-0.169	-0.493	0.340	1.555	-0.153	1.402
		-0.231	-0.051	0.365	0.213	2.187	0.134	2.321
		-0.473	0.643	-0.700	0.361	2.751	-0.029	2.721
		-0.829	-0.953	-0.531	-0.662	1.684	-0.092	1.592
		0.165	-0.168	0.129	0.297	4.708	0.025	4.734
		0.380	0.745	0.076	0.162	4.443	-0.013	4.429
		-0.936	0.086	0.782	-0.261	2.392	-0.117	2.275
		-0.630	0.628	-0.286	-0.905	0.142	-0.131	0.011
		-0.620	0.456	0.342	0.340	6.083	0.083	6.166
		-0.569	-0.733	-0.667	0.358	0.492	-0.048	0.444
		0.810	0.595	-0.543	-0.031	4.924	-0.112	4.813
		0.320	0.470	0.555	0.029	7.446	0.175	7.621
		0.645	-0.978	-0.504	0.376	6.021	0.033	6.054
		-0.269	-0.476	0.925	0.298	4.950	0.080	5.030
		-0.836	-0.637	-0.008	0.451	1.536	-0.024	1.511
		0.247	-0.544	-0.843	-0.288	-0.591	-0.047	-0.639
		0.623	0.602	-0.305	0.464	10.208	-0.158	10.050
		0.884	-0.727	0.390	-0.573	1.733	0.075	1.808
		0.995	-0.665	-0.078	0.320	5.736	-0.017	5.719
		0.128	0.219	-0.567	-0.538	0.156	-0.022	0.134
		0.729	0.016	-0.212	0.611	7.301	-0.179	7.122
		-0.720	0.021	0.018	0.941	4.881	0.187	5.068
		0.242	-0.792	-0.546	0.453	1.431	0.000	1.432
		-0.311	-0.858	0.048	0.351	1.277	-0.124	1.154
		-0.874	-0.166	-0.621	-0.226	-0.016	-0.164	-0.180
		0.000	-0.972	0.848	-0.215	3.021	0.017	3.038
		-0.606	-0.574	-0.434	-0.500	-1.135	0.167	-0.968
		-0.593	0.358	0.416	-0.802	0.831	0.026	0.857
		0.730	0.377	0.817	0.863	10.971	0.000	10.971
		0.898	-0.701	0.669	0.654	7.681	-0.182	7.499
		-0.260	0.185	-0.017	-0.175	2.030	0.171	2.200
		0.509	-0.250	0.700	0.575	8.992	-0.147	8.845
		-0.797	-0.286	-0.794	-0.667	-1.338	-0.021	-1.359
		0.573	-0.405	0.020	-0.007	2.107	-0.009	2.097
		-0.661	-0.670	-0.819	-0.432	-0.860	0.151	-0.708
		0.971	0.950	-0.185	0.800	8.583	0.033	8.617
		0.960	-0.335	0.397	0.195	7.270	-0.115	7.155
		0.378	0.420	0.191	-0.001	4.062	-0.114	3.948
		0.920	0.457	0.368	0.612	23.096	-0.102	22.994
		-0.461	-0.659	-0.575	-0.053	0.829	0.195	1.024
		-0.835	-0.197	0.990	0.204	3.812	-0.118	3.695
		0.415	0.034	-0.751	0.614	2.620	0.107	2.726
		0.053	-0.089	-0.419	0.589	2.567	0.050	2.617

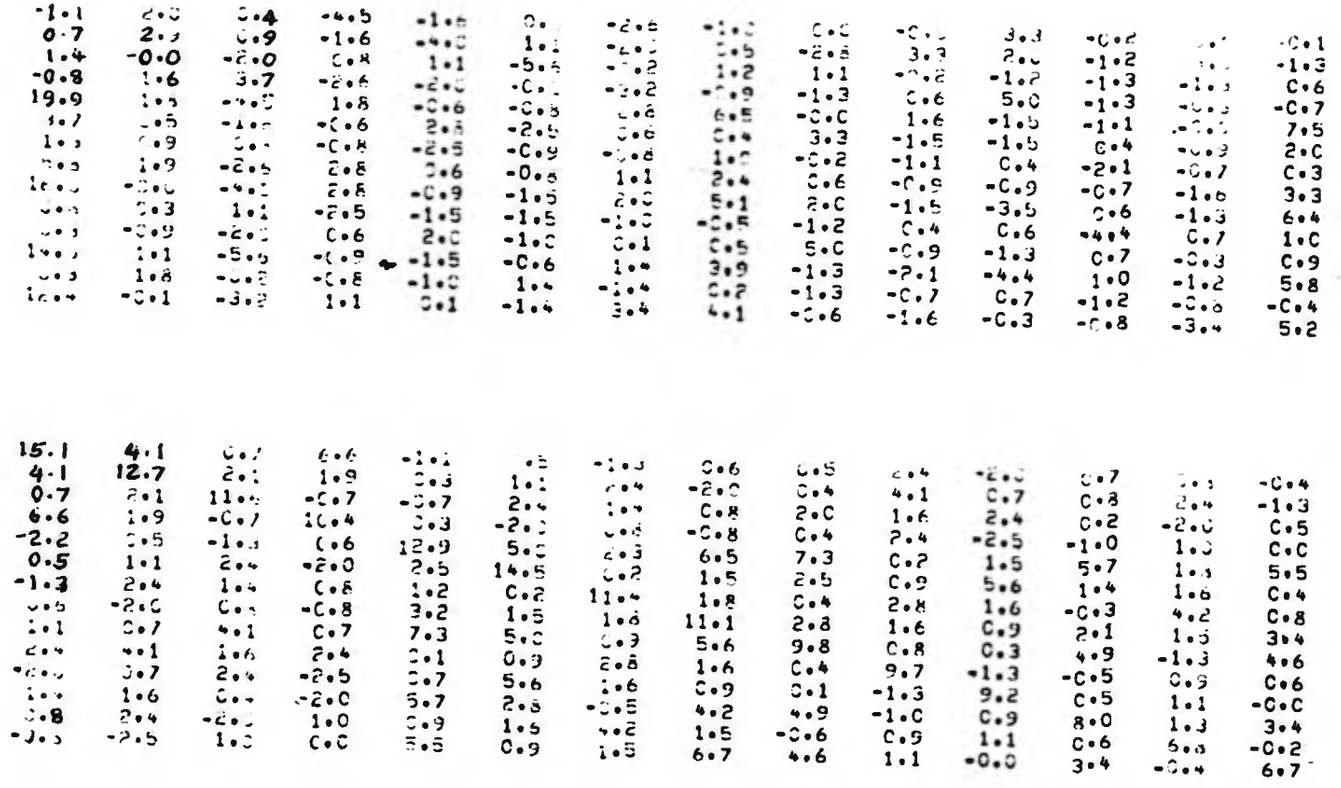
SIGMA = 0.10000

[illegible] LMS COEFFICIENTS

1	0.195562E 03
2	0.188941E 02
3	-0.228724E 02
4	0.798426E 02
5	0.421024E 02
6	0.339064E 02
7	0.754819E 02
8	0.679791E 02
9	0.171436E 02
10	0.272814E 02
11	-0.173973E 01
12	0.118352E 02
13	0.941614E 01
14	0.796242E 02
15	-0.477485E 01
16	0.640307E 01
17	-0.615533E 00
18	-0.858099E 01
19	0.956527E 02
20	0.282141E 02
21	0.573305E 01
22	0.417203E 02
23	0.776469E 02
24	-0.633964E 00
25	0.127869E 02
26	0.513830E 02
27	0.545270E 01
28	0.599070E 02

50.0	2.0	[illegible]	1.3	-1.3	[illegible]	[illegible]	14.4	-1.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.0	14.4	[illegible]	0.0	-3.0	-0.[illegible]	[illegible]	2.5	-10.3	5.5	0.2	-1.6	[illegible]	0.3
-12.4	-0.8	17.6	-1.1	0.7	1.4	[illegible]	-5.1	0.5	4.0	5.8	-0.0	3.[illegible]	-7.7
1.3	[illegible]	-1.[illegible]	19.9	3.7	1.3	[illegible]	2.8	4.0	3.6	0.9	1.8	3.[illegible]	0.4
-1.3	[illegible]	0.7	3.7	16.5	0.8	0.3	0.1	5.8	0.9	-0.0	0.5	-1.[illegible]	0.9
-2.7	[illegible]	1.4	1.3	0.8	14.5	0.3	-0.8	-0.0	1.8	0.5	2.2	3.6	-2.0
5.8	-1.6	-0.[illegible]	5.8	0.3	0.3	12.4	2.1	3.3	3.9	-1.8	3.6	-0.3	3.7
14.4	[illegible]	-5.[illegible]	2.8	0.1	-0.8	2.1	7.8	-1.8	1.0	-3.9	-0.0	-0.[illegible]	5.3
-0.8	-5.1	0.3	2.0	2.9	-0.0	1.6	-0.9	10.6	-2.0	1.0	2.3	-1.[illegible]	0.5
0.0	3.8	2.[illegible]	1.5	0.5	0.9	1.9	0.5	-2.0	13.0	0.8	2.0	4.7	0.0
-3.0	0.1	2.[illegible]	0.5	-0.0	0.3	-0.9	-2.0	1.0	0.8	10.2	-0.9	1.0	-1.4
-0.0	-0.8	-0.[illegible]	0.9	0.3	1.1	1.8	-0.0	2.3	2.0	-0.9	7.9	0.[illegible]	0.6
-1.6	2.1	1.[illegible]	1.9	-0.9	1.8	-0.1	-0.4	-1.9	4.7	1.0	0.5	8.[illegible]	-0.[illegible]
17.8	0.3	-7.7	0.4	0.9	-2.0	3.7	5.3	1.1	0.0	-2.8	1.1	-1.[illegible]	11.0

-2.2	1.4	2.7	-1.7	[illegible]	7.3	2.7	11.7	16.5	1.6	0.5	14.5	0.6	12.4
4.0	5.5	-0.0	3.[illegible]	[illegible]	[illegible]	[illegible]	3.9	-0.0	0.5	-1.[illegible]	1.1	[illegible]	-0.1
0.9	1.[illegible]	-4.0	7.[illegible]	-[illegible]	-[illegible]	[illegible]	-5.3	-4.0	2.3	-4.0	-5.6	-0.[illegible]	-3.[illegible]
-8.9	-3.1	1.6	-5.[illegible]	[illegible]	-1.1	-[illegible]	5.6	[illegible]	-5.0	1.2	-0.9	-1.[illegible]	1.1
-3.1	-8.0	2.3	-4.0	-0.[illegible]	[illegible]	-[illegible]	1.2	-0.9	-3.0	4.0	-1.5	-1.[illegible]	0.1
1.6	2.3	-11.2	-0.[illegible]	-0.[illegible]	-5.0	-[illegible]	-1.6	-1.[illegible]	-2.9	-1.9	-0.6	[illegible]	-1.4
-5.3	-4.0	-0.4	-6.3	[illegible]	1.2	-1.6	2.2	[illegible]	-1.9	0.2	1.4	-2.[illegible]	3.4
-2.0	1.0	2.3	-1.9	6.5	[illegible]	[illegible]	4.7	5.1	-0.9	1.0	3.9	[illegible]	4.1
0.0	-2.8	1.1	-1.[illegible]	-0.[illegible]	3.3	-[illegible]	0.6	1.0	-1.2	5.0	-0.7	-1.[illegible]	-0.3
-0.0	3.3	-0.2	[illegible]	[illegible]	-1.5	-1.1	-0.9	-0.8	0.4	-0.9	-1.1	-0.7	-0.8
3.3	2.0	-1.2	[illegible]	-0.[illegible]	-1.5	[illegible]	-0.9	-1.7	0.6	-1.3	-2.2	0.7	-0.2
-0.2	-1.2	-1.3	-1.3	-0.5	0.4	-[illegible]	-0.7	0.3	-4.4	0.7	0.5	-1.[illegible]	-0.4
0.6	5.0	-1.3	-0.6	-0.4	-0.9	-0.7	-1.6	-0.6	0.7	-0.3	-0.6	-0.[illegible]	-1.7
-0.2	-2.5	1.2	-1.5	7.5	4.1	[illegible]	6.6	6.4	2.1	1.9	5.8	-0.7	5.2



SOLUTION TO UNKNOWN COEFFICIENTS

1	0.2048172E	01
2	0.9952648E	00
3	0.1503005E	01
4	0.2039849E	01
5	0.2454039E	01
6	0.3063885E	01
7	0.3470049E	01
8	0.1064457E	01
9	0.5126258E	00
10	0.4773646E	00
11	0.4807221E	00
12	0.5497768E	00
13	0.4642154E	00
14	0.8922488E	00
15	0.5133707E	00
16	0.4561776E	00
17	0.5389970E	00
18	0.5165728E	00
19	0.9542690E	00
20	0.5096346E	00
21	0.4879822E	00
22	0.4373681E	00
23	0.9068553E	00
24	0.6159630E	00
25	0.5438474E	00
26	0.1024503E	01
27	0.4754120E	00
28	0.1040387E	01

APPENDIX 26

SOURCE DATA AND RESULTS FOR A QUADRATIC REGRESSION ANALYSIS - SIGMA = 0.2

INPUT DATA P1	P2	P3	P4	P5	P6	SCORE	NOISE	S + N
0.249	-0.776	-0.939	0.674	0.358	-0.482	2.937	-0.431	2.506
-0.261	0.513	0.764	0.044	0.939	-0.290	8.350	0.070	8.421
0.079	-0.336	0.942	-0.215	-0.515	-0.812	-0.109	0.150	0.041
0.956	0.085	-0.210	-0.403	-0.459	0.367	2.360	0.178	2.538
-0.605	-0.696	-0.836	0.232	0.880	0.481	5.180	-0.088	5.092
0.424	0.902	0.992	-0.427	-0.957	-0.095	3.157	-0.032	3.125
-0.575	-0.085	0.212	0.456	-0.433	0.910	5.666	0.077	5.743
0.673	0.138	0.901	0.924	-0.602	-0.640	5.374	-0.080	5.294
0.566	-0.110	-0.813	-0.572	-0.007	-0.154	0.350	0.116	0.466
0.033	0.706	0.831	-0.543	0.607	0.753	11.024	-0.186	11.738
0.642	-0.526	0.954	0.108	0.275	-0.228	5.690	0.038	5.729
0.861	0.501	0.525	-0.906	0.969	0.339	10.782	-0.180	10.602
-0.856	0.024	0.509	0.688	0.454	-0.473	4.633	-0.101	4.532
-0.112	-0.347	0.720	-0.889	-0.673	-0.142	0.065	-0.198	-0.132
-0.512	-0.744	0.374	-0.155	0.741	-0.437	2.554	0.497	3.051
0.275	-0.224	-0.695	-0.604	-0.677	-0.219	-0.720	0.019	-0.701
-0.738	0.494	0.340	-0.010	-0.229	-0.811	0.451	0.075	0.526
0.088	-0.781	-0.395	-0.303	-0.354	0.569	1.651	0.223	1.874
0.473	-0.075	0.406	0.517	0.849	-0.177	9.074	-0.180	8.894
0.321	0.315	0.413	0.871	0.282	-0.087	10.048	-0.041	10.006
-0.198	-0.161	0.622	-0.943	0.202	0.244	2.656	0.161	2.817
-0.637	0.631	-0.756	0.131	0.761	-0.011	4.365	0.065	4.431
0.852	-0.107	-0.851	0.725	-0.770	-0.160	2.149	0.072	2.221
-0.847	0.218	0.586	0.305	0.415	0.709	9.044	0.177	9.222
0.398	0.346	-0.897	-0.631	0.755	-0.142	2.595	-0.028	2.567
-0.626	0.864	0.147	-0.923	0.618	0.969	8.118	0.221	8.340
0.635	-0.674	-0.151	0.822	-0.731	0.654	4.888	-0.180	4.708
-0.222	-0.662	0.107	0.240	-0.957	-0.101	0.387	-0.282	0.105
-0.569	0.059	-0.755	0.152	-0.812	0.945	2.976	0.022	2.999
0.412	0.646	-0.431	0.948	-0.099	0.112	7.131	0.281	7.412
0.578	0.136	0.900	0.909	-0.902	-0.946	2.922	-0.071	2.851
-0.130	-0.723	0.805	0.964	0.236	0.957	12.641	0.120	12.761
0.036	0.763	0.018	0.381	0.007	0.167	6.103	-0.069	6.033
-0.455	0.453	-0.481	-0.091	0.084	-0.233	1.091	-0.064	1.026
0.190	-0.007	-0.151	0.838	-0.401	-0.421	1.846	-0.036	1.810
-0.125	-0.616	-0.988	0.515	0.815	-0.890	1.956	-0.576	1.380
0.095	-0.002	-0.057	0.784	0.473	-0.059	6.338	0.209	6.547
0.596	0.512	0.756	-0.127	-0.665	0.038	4.137	-0.025	4.112
-0.271	0.304	0.391	0.210	0.406	0.517	8.126	0.191	8.317
0.969	0.763	0.032	0.683	0.349	-0.664	8.246	-0.229	8.017
0.241	-0.948	0.067	-0.162	0.592	0.429	4.655	-0.324	4.331
0.133	0.799	0.786	0.505	0.608	0.775	18.462	0.089	18.551
0.232	0.237	0.970	0.376	-0.099	-0.091	6.686	-0.225	6.462
-0.845	0.265	-0.428	-0.992	-0.840	0.360	1.425	0.401	1.826
-0.145	0.965	0.275	-0.232	-0.879	-0.454	0.186	-0.355	-0.169
-0.522	-0.959	-0.132	-0.781	-0.401	-0.419	1.396	-0.129	1.267
-0.633	0.704	0.753	0.439	-0.754	-0.459	2.393	0.184	2.577
-0.989	0.498	0.383	0.777	0.317	0.660	10.174	0.256	10.430
-0.927	0.527	-0.926	0.551	-0.431	0.955	5.169	-0.267	4.902
0.701	0.715	-0.991	-0.821	0.753	-0.194	2.959	-0.191	2.768

SIGMA = 0.20000

KNOWN LHS COEFFICIENTS

1	0.239963E 03
2	0.254082E 01
3	0.548403E 02
4	0.764259E 02
5	0.627688E 02
6	0.634523E 02
7	0.611940E 02
8	0.752384E 02
9	0.201322E 01
10	0.113962E 02
11	-0.990996E 00
12	-0.266184E 01
13	-0.293840E 02
14	0.784233E 02
15	0.229997E 02
16	-0.271574E 01
17	0.214068E 02
18	0.166811E 02
19	0.927779E 02
20	0.222952E 02
21	0.257562E 02
22	0.205998E 02
23	0.993316E 02
24	-0.421085E 01
25	0.430744E 01
26	0.821523E 02
27	0.212253E 02
28	0.821224E 02

COEFFICIENT MATRIX

50.0	-0.0	4.5	6.9	5.2	0.0	1.6	15.0	-0.3	3.1	1.4	-1.8	-7.6	15.4
-0.0	15.0	-0.2	1.6	0.7	-0.9	-3.8	-0.3	6.5	1.6	3.7	-0.5	2.5	-0.4
4.5	-0.2	15.4	2.6	-0.6	0.5	1.0	3.3	-0.9	0.4	-2.0	1.9	-3.4	1.4
6.9	1.6	2.6	18.4	2.4	-1.3	-1.4	0.8	0.4	1.3	1.8	-3.0	1.5	1.8
5.2	0.7	-0.6	2.4	18.8	-0.4	-1.3	1.9	-2.0	1.8	3.4	-5.5	-4.5	0.3
0.0	-0.9	0.5	-1.3	-0.4	18.7	1.8	-0.3	1.9	-3.0	-5.5	1.0	1.0	0.9
1.6	-3.8	1.0	-1.4	-1.3	1.8	14.2	1.2	-3.4	1.0	-4.0	1.0	-5.4	1.1
15.0	-0.3	3.3	0.8	1.9	-0.3	1.2	8.6	-0.5	1.2	-1.0	-0.4	-4.7	3.8
-0.2	3.3	-0.4	0.2	-1.0	0.9	-1.7	-0.2	7.6	0.2	0.1	0.9	0.6	0.5
1.6	0.8	0.2	0.7	0.9	-1.5	0.5	0.6	0.2	10.0	2.3	0.5	-3.1	0.4
0.7	1.9	-1.0	0.9	1.7	-2.8	-2.0	-0.5	0.1	2.3	12.3	-1.9	-1.4	0.6
-0.9	-0.3	0.9	-1.5	-2.8	0.5	0.5	-0.2	0.9	0.5	-1.9	11.3	-0.0	-0.0
-3.8	1.2	-1.7	0.5	-2.0	0.5	-2.7	-2.3	0.6	-3.1	-1.4	-0.0	9.7	-0.5
15.4	-0.4	1.4	1.8	0.3	0.9	1.1	3.8	0.9	0.7	1.1	-0.0	-1.0	8.6

5.2	-1.2	1.0	2.1	18.4	4.8	-2.6	-2.9	18.8	-0.9	-2.6	18.7	3.6	14.2
0.4	-2.0	1.9	-3.4	0.7	1.8	-3.0	1.0	1.7	-5.5	-4.0	0.5	1.0	-2.7
3.6	0.6	1.8	2.1	3.0	1.2	-1.2	-0.6	1.6	-3.0	-2.9	2.2	3.9	1.2
6.0	1.2	-1.2	-0.6	4.6	3.3	0.1	-1.1	2.6	-0.6	-2.1	2.3	9.6	2.3
1.2	3.1	-3.0	-2.9	1.7	5.2	-0.6	-2.1	2.6	-0.8	1.6	0.2	-1.1	3.6
-1.2	-3.0	4.5	3.9	0.0	-0.6	4.6	9.6	-0.4	0.3	-1.1	-0.6	-0.6	-0.5
-0.6	-2.9	3.9	2.4	-0.5	-2.1	9.6	4.7	0.8	-1.1	7.2	-0.3	-1.0	2.8
0.2	0.1	0.9	0.6	5.0	2.3	0.5	-3.1	6.2	-1.9	-1.4	5.7	-0.0	4.8
0.7	1.1	-0.0	-1.0	0.2	0.4	-2.1	1.3	0.4	0.3	-0.4	0.6	-0.2	-1.0
0.4	0.4	-2.1	1.3	2.3	-1.6	-0.6	-4.3	0.3	-0.0	-1.6	1.4	0.0	1.1
0.4	0.9	0.3	-0.4	-0.8	0.7	-0.0	-1.6	2.2	0.4	-4.6	0.2	0.9	0.3
-2.1	0.3	1.1	-0.2	-0.3	-0.0	2.9	0.0	0.2	0.4	0.9	-0.2	-2.4	-0.3
1.3	-0.4	-0.2	-2.0	-2.2	-1.6	0.0	2.2	-2.3	0.9	0.7	-1.2	-0.6	-3.1
3.4	-1.2	-1.2	0.5	5.2	-0.2	-2.3	1.2	5.2	0.2	0.0	6.3	2.6	4.6

2.6	0.2	1.8	3.0	0.6	-0.6	-0.3	0.0	0.7	0.4	0.4	-2.1	1.3	1.7
-0.6	-1.0	0.3	0.6	1.6	-1.5	-1.5	0.0	1.1	0.4	0.9	0.3	-0.4	-0.6
0.5	0.9	0.9	-0.6	-1.5	2.2	2.0	0.5	-0.0	-2.1	0.3	1.1	-0.2	-0.6
1.0	-1.7	1.1	-0.3	-1.5	2.0	1.2	0.3	-1.0	1.3	-0.4	-0.2	-2.0	0.2
16.4	0.7	3.0	4.6	1.7	0.0	-0.5	5.0	0.4	4.6	-1.6	-0.6	-4.3	5.2
2.4	0.9	0.6	1.7	2.6	-0.3	-1.0	1.2	0.4	-1.6	0.7	-0.0	-1.6	-0.0
-1.3	-1.5	-0.6	0.0	-0.3	2.3	4.8	0.2	-2.1	-0.6	-0.0	2.9	0.0	-1.2
-1.4	0.5	-0.3	-0.5	-1.0	4.5	2.3	-1.6	1.3	-4.3	-1.6	0.0	2.2	0.6
18.8	1.7	1.6	2.6	2.6	-0.4	0.8	6.2	0.9	0.7	4.4	0.4	-4.6	5.2
-0.4	-2.8	-1.5	-0.3	-0.4	0.2	-0.5	-0.9	0.3	-0.0	0.4	0.4	0.9	0.1
-1.3	-2.0	-1.5	-1.0	0.8	-0.5	3.6	-0.7	-0.4	-1.6	-4.6	0.9	0.7	0.0
18.7	0.5	2.2	2.3	0.2	-0.6	-0.3	5.7	1.1	2.9	0.4	-0.3	-2.4	6.3
1.6	0.5	2.0	4.8	-0.5	-0.3	-0.5	-0.0	-0.2	0.0	0.9	-2.4	-0.6	1.3
14.2	-2.7	1.2	2.3	3.6	-0.5	2.8	4.8	-2.0	2.2	0.7	-0.6	-6.2	4.6

10.4	-0.2	-2.3	1.2	0.9	-1.5	-0.8	1.7	0.1	1.3	-3.2	2.2	2.3	0.9
-0.2	10.5	0.2	0.0	-0.7	0.2	1.3	-3.2	-1.0	2.7	1.6	-1.8	0.2	-1.0
-2.3	0.2	12.6	2.6	-0.4	1.3	4.4	2.3	1.4	-3.6	0.2	-0.3	0.5	0.2
1.2	0.0	2.6	9.2	0.9	-3.2	2.3	1.8	0.8	0.2	-1.9	0.2	0.4	1.1
1.7	-1.5	-0.8	1.7	11.8	3.6	-5.2	-2.8	6.5	-1.3	-0.7	7.8	1.3	6.1
-1.5	0.2	1.3	-3.2	1.8	13.0	-1.3	-0.7	1.7	-0.9	0.3	0.6	2.4	0.9
-0.8	1.3	4.4	2.3	-2.6	-1.3	15.5	1.9	-0.5	1.2	2.4	-1.7	-2.6	0.0
1.7	-3.2	2.3	1.8	-1.4	-0.7	1.9	12.2	0.2	2.4	1.8	-1.3	0.0	-0.7
0.2	-2.0	2.7	1.6	6.5	3.3	-0.9	0.3	12.3	-2.1	-3.3	6.6	2.8	5.6
1.3	2.7	-3.6	0.2	-0.7	-0.9	1.2	2.4	-1.1	13.2	2.8	-1.0	-2.8	-1.2
-3.2	1.6	0.2	-1.9	-0.4	0.3	2.4	1.8	-1.7	2.8	11.3	-1.4	-2.3	-0.2
4.4	-3.6	-0.5	0.5	7.8	1.2	-3.3	-2.6	6.6	-2.1	-2.8	11.1	1.7	5.1
2.3	0.2	0.5	0.4	1.0	2.4	-2.6	0.0	1.4	-2.8	-2.3	0.9	10.1	0.8
1.8	-1.9	0.4	2.2	6.1	1.8	0.0	-1.5	5.6	-2.3	-0.5	5.1	1.5	8.6

SOLUTION TO LAGUERRE COEFFICIENTS

1	0.2065205E 01
2	0.9460671E 00
3	0.1570565E 01
4	0.2054206E 01
5	0.2404277E 01
6	0.3038924E 01
7	0.3679923E 01
8	0.1032171E 01
9	0.5320325E 00
10	0.4382973E 00
11	0.5906336E 00
12	0.4236687E 00
13	0.5713624E 00
14	0.7755498E 00
15	0.4362708E 00
16	0.5569076E 00
17	0.4254118E 00
18	0.5546231E 00
19	0.9235961E 00
20	0.5690032E 00
21	0.5090386E 00
22	0.4289534E 00
23	0.1010165E 01
24	0.5033635E 00
25	0.5282059E 00
26	0.1007335E 01
27	0.5093267E 00
28	0.1005953E 01

APPENDIX 27

SOURCE DATA AND RESULTS FOR A QUADRATIC REGRESSION ANALYSIS - SIGMA = 0.3

INPUT DATA P1	P2	P3	P4	P5	P6	SCORE	NOISE	S + N
0.822	-0.742	0.423	0.893	0.750	-0.242	9.419	0.183	9.602
-0.722	0.845	-0.250	0.743	-0.397	-0.335	2.608	0.451	3.058
-0.936	0.352	-0.609	-0.782	-0.419	-0.809	0.865	-0.432	0.432
-0.653	0.278	-0.169	0.441	-0.731	0.652	3.479	0.169	3.648
0.287	0.018	0.396	0.316	0.641	-0.532	5.110	-0.062	5.048
0.455	-0.435	0.865	0.159	-0.656	0.226	3.768	-0.036	3.732
-0.065	0.631	-0.749	0.270	-0.324	-0.805	0.294	-0.116	-0.410
-0.394	-0.272	0.283	-0.059	0.751	-0.234	3.515	0.165	3.680
-0.873	-0.330	-0.933	0.398	0.349	-0.663	1.824	0.165	1.989
0.096	0.020	0.438	-0.811	0.959	0.136	5.575	0.045	5.620
0.904	0.976	0.500	0.500	0.499	0.471	18.543	0.254	18.797
-0.229	-0.617	0.853	-0.084	0.235	0.935	7.610	-0.234	7.377
0.476	0.000	0.005	0.113	0.382	0.030	4.729	0.590	5.318
-0.729	0.689	0.476	-0.005	-0.107	-0.254	2.692	0.231	2.923
-0.521	-0.948	0.083	-0.241	0.931	-0.440	2.669	0.026	2.695
0.286	-0.303	-0.075	0.407	0.542	-0.613	3.236	0.233	3.470
0.217	0.549	-0.467	0.190	-0.001	-0.037	2.849	-0.116	2.734
-0.200	-0.203	-0.262	0.492	0.341	-0.840	1.117	-0.093	1.024
-0.082	0.271	-0.302	-0.352	0.607	0.751	6.300	0.499	6.799
0.346	-0.732	0.629	-0.798	-0.757	0.099	0.458	0.277	0.735
0.981	0.606	0.719	-0.895	-0.795	-0.704	0.133	0.173	0.306
0.253	-0.679	-0.269	0.345	-0.751	0.227	1.149	0.408	1.557
-0.771	-0.201	-0.213	-0.481	-0.091	0.081	1.178	-0.179	0.999
-0.102	-0.150	0.850	-0.159	0.657	-0.203	5.260	-0.042	5.219
0.153	-0.791	-0.615	-0.916	0.759	-0.053	1.830	0.128	1.958
-0.048	0.986	0.713	0.967	0.312	0.550	17.599	0.522	18.121
-0.831	0.550	-0.454	0.475	-0.031	-0.659	1.255	-0.409	0.846
-0.365	0.344	-0.780	-0.388	-0.145	0.958	3.585	-0.212	3.373
-0.136	-0.852	0.100	0.103	0.170	-0.424	1.098	-0.526	0.572
0.965	0.271	-0.308	-0.477	-0.024	-0.520	0.471	0.083	0.555
0.247	-0.813	0.922	-0.635	0.670	0.069	4.860	-0.243	4.617
-0.995	-0.899	-0.878	-0.445	0.658	-0.192	3.493	0.128	3.621
0.998	0.961	0.185	-0.110	-0.305	-0.399	4.219	-0.116	4.103
0.114	0.401	0.425	0.925	-0.566	0.119	6.378	0.579	6.957
-0.260	0.124	0.609	0.793	0.646	-0.444	7.391	0.116	7.508
0.201	0.223	0.689	0.459	-0.366	0.324	6.773	0.288	7.061
-0.812	0.939	-0.289	-0.078	0.342	-0.817	1.452	0.481	1.932
0.969	0.353	-0.579	-0.160	0.634	-0.682	2.746	-0.256	2.490
-0.404	-0.474	0.052	-0.892	-0.722	0.839	2.016	-0.281	1.736
0.170	-0.436	0.803	0.862	0.106	0.232	8.745	0.330	9.075
0.615	-0.881	-0.504	-0.578	-0.131	-0.761	-0.624	0.239	-0.385
-0.160	0.854	-0.062	0.680	0.270	-0.321	5.896	-0.034	5.862
0.604	-0.693	-0.552	0.414	0.700	0.707	8.011	-0.137	7.875
0.606	0.719	-0.902	-0.946	0.143	-0.991	-0.787	0.464	-0.323
-0.986	-0.709	-0.887	-0.629	0.782	0.430	4.181	-0.819	3.362
-0.172	0.380	-0.018	-0.391	-0.212	-0.447	-0.159	0.178	0.018
0.340	-0.869	-0.259	0.562	-0.205	-0.299	1.220	-0.103	1.117
-0.045	-0.954	-0.044	-0.925	0.566	-0.119	1.614	-0.449	1.165
-0.334	0.994	0.851	0.492	0.342	-0.828	6.935	-0.719	6.216
0.722	-0.542	0.312	0.542	-0.617	-0.957	0.048	0.068	0.116

SIGMA = 0.30000

KALMAN LHS COEFFICIENTS

1	0.195901E 03
2	0.181758E 02
3	0.248419E 02
4	0.536971E 02
5	0.566393E 02
6	0.593973E 02
7	0.213652E 02
8	0.559961E 02
9	0.959133E 01
10	0.180442E 02
11	0.181765E 02
12	0.108372E 02
13	0.840755E 01
14	0.911176E 02
15	0.200561E 02
16	0.341888E 02
17	-0.470123E 01
18	0.197829E 01
19	0.681162E 02
20	0.347265E 02
21	0.125263E 02
22	0.697535E 01
23	0.732026E 02
24	0.837141E 01
25	0.390682E 01
26	0.577258E 02
27	-0.737645E-01
28	0.485285E 02

COEFFICIENT MATRIX

5[illegible]	0.2	-1.4	0.8	0.3	6.4	-7.8	16.5	-0.8	8.0	0.7	-2.4	-2.3	20.5
[illegible]	16.5	-0.4	4.0	0.4	-1.2	-1.2	0.4	2.1	-6.1	-3.5	3.0	-10.2	0.7
-1.4	0.4	20.5	0.3	4.1	-3.0	-2.7	1.1	1.4	-1.9	-6.1	3.6	2.7	-1.1
0.8	4.0	0.2	15.3	3.8	-0.7	2.5	-3.1	-1.9	-1.4	-0.6	-0.7	-0.1	0.8
0.3	0.4	4.1	3.8	16.3	-0.5	-0.2	-1.7	-6.1	-0.6	1.9	3.1	4.3	0.3
6.4	-1.2	-3.0	-0.7	-0.5	14.0	-1.3	1.5	3.6	-0.7	3.1	1.0	3.1	3.1
-7.8	-1.2	-2.7	2.5	-0.2	-1.3	15.1	-5.1	2.7	-0.1	4.9	3.1	-0.3	-4.0
16.5	0.4	1.1	-3.1	-1.7	1.5	-5.1	11.4	3.4	7.1	0.5	-2.0	-2.1	7.6
-0.4	1.1	0.7	-0.9	-3.0	1.8	1.3	1.7	15.3	3.2	0.3	-3.7	-2.3	-0.1
4.0	-3.1	-0.9	-0.7	-0.3	-0.3	-2.0	3.5	3.2	10.8	2.9	-4.0	2.5	1.7
0.4	-1.7	-3.0	-0.3	1.0	1.6	2.4	0.2	0.3	2.9	9.9	1.4	2.4	0.3
-1.2	1.5	1.8	-0.3	1.6	0.5	1.6	-1.0	-3.7	-4.0	1.4	9.1	1.3	-1.5
-1.2	-5.1	1.3	-0.0	2.4	1.6	-0.1	-1.0	-2.9	2.5	2.4	1.0	11.4	-0.1
20.5	0.7	-1.1	0.8	0.3	3.1	-4.0	7.6	-0.3	3.4	0.5	-3.0	-0.2	13.8

0.7	8.3	-6.0	-5.5	15.3	7.7	-1.4	5.0	16.3	-0.9	-0.4	14.0	-2.5	15.1
-1.9	-6.1	3.6	2.7	-0.7	-0.6	-0.7	-0.1	1.0	3.1	4.9	0.5	3.1	-0.1
1.8	0.6	6.3	-7.9	-0.9	1.8	2.9	0.5	-0.7	3.8	3.4	-3.5	0.7	1.3
-1.8	1.8	2.9	0.5	0.9	-1.8	5.5	-3.6	1.2	3.6	-0.7	1.4	-0.1	-2.0
1.5	-1.4	3.8	3.4	-0.9	2.3	3.6	-0.7	-1.0	3.0	-4.3	-1.7	-1.3	-0.7
2.3	3.6	-6.9	0.7	2.8	3.6	2.7	-0.1	1.5	-3.3	-1.3	3.3	-1.8	0.7
0.5	3.4	0.7	2.7	-1.8	-0.7	-0.1	-4.0	-2.2	-1.3	-1.4	-0.9	1.4	-3.6
3.2	0.3	-3.7	-2.9	5.4	2.9	-4.0	2.5	5.0	1.4	2.4	4.6	1.0	5.7
3.4	0.5	-3.0	-0.2	0.9	0.9	-2.3	1.0	-0.4	-0.5	2.1	0.6	-0.3	-0.8
1.6	0.9	-2.9	1.0	2.4	-0.5	-2.9	-0.5	1.7	0.4	-1.3	1.8	1.6	0.7
0.3	-0.9	-0.5	2.1	-0.3	3.3	0.4	-1.3	-0.3	-0.0	-2.2	0.6	0.4	-0.4
-2.3	-0.5	1.2	-0.3	-1.4	0.4	3.7	1.6	-0.0	1.3	0.4	-0.9	-1.5	-0.2
1.0	2.1	-0.3	-1.5	-0.3	-1.3	1.6	1.3	-1.1	0.4	-0.8	-0.7	-0.4	-1.4
3.2	7.9	-3.2	-2.1	6.5	4.2	-0.8	2.4	7.3	-1.1	1.0	5.4	0.6	6.3

0.3	-0.9	0.8	-0.9	0.9	1.4	0.2	1.6	3.4	1.8	0.9	-2.9	1.0	1.6
4.1	-3.0	0.3	0.9	-0.7	1.9	1.7	0.2	0.5	0.9	-0.9	-0.5	2.1	3.9
-3.0	1.8	3.1	1.4	1.9	-3.5	0.4	-1.8	-3.0	-2.9	-0.5	1.2	-0.3	-1.6
-2.7	1.3	-4.0	0.2	1.7	0.4	1.3	-1.4	-0.2	1.0	2.1	-0.3	-1.5	-1.1
15.3	-0.7	-0.9	0.9	-0.9	2.8	-1.2	5.4	1.8	4.8	-0.5	-2.9	-0.5	6.5
3.6	-0.3	0.9	-0.9	1.2	1.8	-0.3	1.5	0.9	-0.5	3.3	0.4	-1.3	2.1
-0.7	-0.3	1.4	2.8	1.8	1.4	-0.0	-2.0	-2.9	-2.9	0.4	3.7	1.6	-0.4
2.5	-0.0	0.2	-1.8	-0.3	-0.0	-2.0	1.2	1.0	-0.5	-1.3	1.6	1.3	1.2
16.3	1.0	-0.7	1.2	-1.0	1.5	-2.2	5.0	-0.9	3.3	-0.5	0.0	-2.2	7.3
-0.5	1.6	1.9	1.8	1.5	-1.7	-0.7	0.7	-0.5	0.4	-0.0	1.3	0.4	-0.6
-0.2	2.4	1.7	-0.3	-2.2	-0.7	-0.7	1.2	2.1	-1.3	-2.2	0.4	-0.8	0.5
14.0	0.5	-3.5	1.4	-1.7	3.3	-0.9	4.6	1.2	3.7	1.3	-1.7	-1.0	5.4
-1.3	1.6	0.4	-0.0	-0.7	-0.9	0.7	0.5	-0.3	1.6	0.4	-1.5	-0.4	0.3
15.1	-0.1	1.3	-2.0	-0.7	0.7	-3.6	5.7	-1.5	1.3	-0.8	-0.4	-2.7	6.3

12.9	4.2	-0.8	2.4	0.1	2.8	-2.9	-4.0	0.5	0.1	0.7	0.5	0.7	-0.8
4.2	14.6	-1.1	1.0	1.4	1.1	0.1	0.7	2.5	-2.8	-1.6	1.4	-1.5	-0.3
-0.8	-1.1	10.9	0.6	-1.4	0.1	1.0	0.7	-1.4	2.9	-1.5	-1.9	-0.5	0.2
2.4	1.0	0.6	12.6	-2.0	0.7	0.7	-1.6	-0.8	-1.5	-0.6	0.3	0.4	-2.0
0.3	2.8	-2.9	4.0	5.7	4.2	-1.4	3.1	5.4	-0.6	1.3	4.2	0.1	5.3
2.0	1.1	0.1	0.7	2.1	10.8	-0.6	1.3	2.7	-0.8	2.3	0.3	-0.8	1.7
-2.9	0.1	1.0	0.7	-0.7	0.6	8.5	0.1	-0.4	0.5	-0.8	0.6	-1.1	-0.3
-4.0	0.7	0.7	-1.6	1.5	1.3	0.1	10.7	1.2	-0.8	3.4	0.5	-0.6	1.4
1.1	4.9	-2.8	-1.6	5.4	5.5	-0.8	2.3	9.7	0.5	1.8	5.3	-0.1	4.7
0.1	-2.8	2.9	-1.5	-0.3	-0.8	0.5	-0.8	0.3	1.6	-0.1	-0.8	-0.6	0.9
0.7	-1.6	-1.5	0.6	0.6	2.3	-0.8	3.4	0.9	-0.1	9.4	-0.3	1.9	-0.2
1.0	2.9	-3.9	-0.5	4.2	0.5	-1.2	-1.1	5.3	-1.6	-0.6	6.9	-1.3	3.4
0.7	-1.5	-0.5	0.4	0.0	-0.8	-1.1	-0.5	-0.0	-0.6	1.9	-0.6	6.8	-0.0
-1.6	-0.6	0.4	-3.9	5.3	3.4	-0.6	2.9	4.7	1.9	-0.5	3.4	-0.0	8.8

SOLUTION TO LAGRANGE COEFFICIENTS

1	0.2121677E 01
2	0.1137325E 01
3	0.1788941E 01
4	0.1962181E 01
5	0.2512667E 01
6	0.3038862E 01
7	0.3781556E 01
8	0.9223350E 00
9	0.3121573E 00
10	0.5153769E 00
11	0.3566613E 00
12	0.2815580E 00
13	0.5421281E 00
14	0.1003964E 01
15	0.5247703E 00
16	0.3418584E 00
17	0.4688909E 00
18	0.6519444E 00
19	0.7473070E 00
20	0.6009677E 00
21	0.4602525E 00
22	0.7786020E 00
23	0.1021467E 01
24	0.5471520E 00
25	0.5222158E 00
26	0.1396156E 01
27	0.4290628E 00
28	0.7521538E 00

APPENDIX 28

PROGRAM FOR READING BTS SEQUENCES AND COMPUTING THREE-BIT MINTERM CONDITIONAL PROBABILITIES

```
$JOB.
$ASSIGN S=MTO,SI=CR,LO=LP,BO=MT1.
$FORTRAN SI, LO, BO.
*     1  *     ARS - 68 - JOB 8054 - 5
*     2  C     RELATIVE PERFORMANCE EVALUATION BASED UPON EXAMINATION OF
*     3  C     MINTERM PROBABILITIES IN TRAINING SEQUENCES.
*     4  C     3 BIT PREDICTION IS USED, YIELDING 9 MINTERMS.
*     5        DIMENSION IB(-2/20),PMIN(0/15),IPRI(200), IP2(21)
*     6       1,ICTO(0/ 8), ICTD(0/ 8), G( 9,100),A(100),N1(9,100)
*     7        IENS=1
*     8  C     IENS COUNTS  THE NUMBER OF ENSEMBLES  FOR MAG TAPE OUTPUT
*     9     401 READ 32, NP
*    10      32 FORMAT (I3)
*    11        ANUM = NP
*    12        READ 9, SUP
*    13       9 FORMAT (F5.2)
*    14  C     SUP SPECIFIES NUMBER OF MINTERMS NECESSARY IN A BTS TO ESTABLISH
*    15  C     A CONDITIONAL PROBABILITY GREATER THAN 0.5
*    16        DO 34, I=1,NP
*    17       34 A(I)=101-I
*    18  C     NP  = NUMBER OF SCORING SEQUENCES TO BE USED IN REGRESSION
*    19  C     ANALYSIS.
*    20  C     THE DESIRED SCORES TO BE READ FROM MAG TAPE HAVE BEEN SPECIFIED IN
*    21  C     MATRIX A(I).
*    22        READ 2, (IP2(I), I=1,21)
*    23       2 FORMAT (I7)
*    24        REWIND 3
*    25        PAUSE
*    26  C                    READ TAPE 3 AND DETERMINE NUMBER PROBABILITIES.
*    27  C     USE STRAIGHTFORWARD LINEAR PREDICTION WITH 3 BIT PREDICTION
*    28  C     ( 9 MINTERMS).
*    29  C     USE SCORES STARTING WITH 100 AND DECREASING IN UNITS OF 2 UNTIL
*    30  C     50 HAVE BEEN SELECTED.
*    31        DO 200 IA=1,NP
*    32      660 READ TAPE 3, (SC, (PMIN(I), I=0,15))
*    33        READ TAPE 3, (IPRI(J), J=1,200)
*    34        ISC = SC
*    35        NA = A(IA)
*    36        IF (ISC - NA) 660,661,660
*    37      661 DO 250, I=0,8
*    38        ICTO(I) = 0
*    39        ICTD(I) = 0
*    40      250 CONTINUE
*    41        DO 201 J=1,150
*    42        DO 202 M=1,20
*    43        IF (IPRI(J)-IP2(21-M)) 925,926,926
*    44      925 IB(M)=0
*    45        GO TO 202
*    46      926 IB(M)=1
*    47        IPRI(J)=IPRI(J)-IP2(21-M)
*    48      202 CONTINUE
*    49        IF (SENSE SWITCH 2) 210,211
```

```
    210 PRINT 125, (IB(JB), JB=1,20)
    125 FORMAT (20X,20(I1))
C       THIS PRINTOUT ALLOWS FOR COMPARISON TO INSURE THAT DATA WAS
C       TRANSLATED BETWEEN TAPES APPROPRIATELY.
C       NOW DETERMINE PROBABILITIES G(I,J) .
    211 IF (J - 1) 148,148,149
    148 DO 261 I=4,20
        KT = 4*IB(I-1) + 2*IB(I-2) +   IB(I-3)
        IF (IB(I )) 270,270,271
    270 ICTD(KT) = ICTD(KT)+1
        GO TO 261
    271 ICTU(KT)= ICTU(KT) + 1
    261 CONTINUE
        DO 151 K=-2,0
    151 IB(K) = IB(20+K)
        GO TO 201
    149 DO  361 I=1,20
        KT = 4*IB(I-1) + 2*IB(I-2) +   IB(I-3)
        IF (IB(I)) 277,277,278
    277 ICTD(KT) = ICTD(KT) + 1
        GO TO 361
    278 ICTU(KT) = ICTU(KT) + 1
    361 CONTINUE
    201 CONTINUE
        DO 275 K=0,8
        PN = ICTU(K)
        PD  = ICTU(K) + ICTD(K)
        IF (PD - SUP) 879,879,880
    879 G(K+1,IA) = 0.5
        GO TO 275
    880 G(K+1,IA)=PN/PD
    275 N1(K+1,IA)=PD
    200 CONTINUE
C       PRINT THE TRANSPOSE OF G AND THE CORRESPONDING SCORE RATES.
C       G WILL BE OF ORDER 9 X NP.
        DO 281 I=1,NP
        PRINT 280, ((G(J,I), J=1, 9), A(I))
    280 FORMAT (5X, 9(1X,F5.3),3X,F6.1,/)
    281 CONTINUE
        PRINT 285
    285 FORMAT (1H1)
        DO 282 I=1,NP
        PRINT 283, (N1(J,I),J=1,9)
    283 FORMAT (5X,9(3X,I4))
    282 CONTINUE
        WRITE TAPE 2, (IENS,((G(I,J), J=1,NP), I=1,9))
        WRITE TAPE 2, (A(I), I=1,NP)
        WRITE TAPE 2, ((N1(I,J),J=1,NP),I=1,9)
        IENS = IENS + 1
C       G(I,J) FOR EACH IENS CONTAINS THE DATA VALUES REQUIRED FOR NON-
C       LINEAR PROCESSING. A(J) CONTAINS THE CORRESPONDING SCORES.
C       N1(I,J) CONTAINS THE NUMBER OF OCCURRENCES OF EACH MINTERM
        GO TO 401
        END
```

PROGRAM ALLOCATION

00010 IB	00037 PMIN	00077 IPRI	00407 IP2
00434 ICTU	00445 ICTD	00456 G	04066 A
04376 N1	06202 IENS	06203 NP	06204 I
06205 IA	06206 J	06207 ISC	06210 NA
06211 M	06212 JB	06213 KT	06214 K
06215 ANUM	06217 SUP	06221 SC	06223 PN
06225 PD			

APPENDIX 29

PROGRAM FOR QUADRATIC REGRESSION ANALYSIS OF ACTUAL DATA

```
A,J88.
      = 10,61=CR,LU=LP,60=4T1.
          .9, 98.
            ARS=68=J08 8054 - PART 6C  NONLINEAR REGRESSION MODEL
            TEST ON ACTUAL DATA  WITH NOISE ADDED TO FUNCTIONALLY CALCULATED
            SCORE.
            PROGRAM ACCEPTS UP TO 50 ATTRIBUTE MEASURES  FROM MAGPAK GENERATED
            IN PART 5, EACH WITH       A 6 WORD ARRAY OF DATA MEASURES.
      6     DIMENSION G(30,30),B(9,50),R(50),PK(50),A(900),R1(50)
      7     EQUIVALENCE (G,A)
      8  C  G IS THE INPUT DATA VECTOR, B IS THE TRANSFORMATION MATRIX
      9  C  CONSTRUCTED FROM THIS DATA VECTOR, PK IS THE VECTOR OF CONSTANTS
     10  C  DERIVED FROM THE DATA VECTOR AND R IS THE VECTOR OF RESULTANT
     11  C  COEFFICIENTS.
     12     READ 1, (NA)
     13     READ 1, (NP)
     14   1 FORMAT (I3)
     15  C  NA = NUMBER OF DATA ELEMENTS IN EACH SCORE.
     16  C  NP= NUMBER OF INDIVIDUAL SCORES (ATTRIBUTES) USED IN TRAINING.
     17     NB = (NA**2 + 3*NA + 2)/2
     18     ANP=NP
     19  C  NB = NUMBER OF UNDETERMINED COEFFICIENTS, HENCE THE NUMBER OF
     20  C  SIMULTANEOUS EQUATIONS.
     21  C  READ INPUT  DATA GENERATED IN PART 5.  THIS DATA CONSISTS OOR EACH
     22  C  ENSEMBLE MEMBER, OF THE ENSEMBLE MEMBER (IENS ), THE DATA MATRIX
     23  C  ((G(I,J),J=1,NP),I=1,9),  AND THE ATTRIBUTE MEASURES (SCORES).
     24  C  PK(J), J=1,NA.
     25     5 PAUSE 1
     26       READ TAPE 2, (IENS,((G(I,J),J=1,NP),I=1,9))
     27       READ TAPE 2, (R$(J),J=1,NP)
     28       PRINT 510
     29       PRINT 4
     30     4 FORMAT ( $          INPUT DATA$,/,$      P1          P2          P3
     31      1       P4          P5          P6       SCORE$,/)
     32       DO 9 J=1,NP
     33       PRINT 8,  ((G(I,J), I=1,NA),R$(J))
     34     8 FORMAT ( 7(4X,F7.3))
     35     9 CONTINUE
     36       G(1,1) = NP
     37       DO 20 J=1,NA
     38       L=J+1
     39       G(1,L) = 0.0
     40       DO 21 I=1,NP
     41    21 G(1,L) = G(1,L) + G(J,I)
     42       G(L,1) = G(1,L)
     43    20 CONTINUE
     44       DO 30 L=2,NA+1
     45       DO 31 M=2,NA+1
     46       G(L,M) = 0.0
     47       DO 32 K=1,NP
     48    32 G(L,M) = G(L,M) + G(L-1,K)*G(M-1,K)
     49    31 CONTINUE
     50    30 CONTINUE
```

```
      IB = 0
      ICT = 1
      DO 41 I=1,NA
      DO 40 J=I,NA
      K = (I-1)*NA - IB + J + NA + 1
      G(K,1) = Q(I+1, J+1)
      IF (I-J)  600,601,600
  601 Q(1,K)=Q(K,1)
      GO TO 40
  600 Q(1,K)=2.*Q(K,1)
   40 CONTINUE
      IB = IB+ICT
      ICT = ICT + 1
   41 CONTINUE
      DO 50 L=1,NA
      IB = 0
      ICT = 1
      DO 51 M=1,NA
      DO 52 J=M,NA
      LA = (M-1)*NA - IB+J+NA+1
      LB = L+1
      Q(LA,LB ) = 0.
      DO 53 K=1,NP
   53 Q(LA,LB ) = Q(LA,LB ) + G(L,K)*G(M,K)*G(J,K)
  603 Q(LB ,LA) = Q(LA,LB )
   52 CONTINUE
      IB = IB+ICT
      ICT = ICT+1
   51 CONTINUE
   50 CONTINUE
      IB1 = 0
      ICT1 = 1
      DO 60 L=1,NA
      DO 61 M=L,NA
      IB = 0
      ICT = 1
      DO 62 I=1,NA
      DO 63 J=I,NA
      LB = NA+1+(L-1)*NA-IB1+M
      LA = NA+1+(I-1)*NA -IB+J
      Q(LB,LA) = 0.0
      DO 64, K=1,NP
   64 Q(LB,LA) = Q(LB,LA)+G(L,K)*G(M,K)*G(I,K)*G(J,K)
      Q(LA,LB) = Q(LB,LA)
   63 CONTINUE
      IB = IB+ICT
      ICT = ICT+1
   62 CONTINUE
   61 CONTINUE
      IB1 = IB1+ICT1
      ICT1 = ICT1+1
   60 CONTINUE
      DO 605 I=2,NB
      IB=0
```

```
      105         ICT=1
      106         DO 607 K=1,NA-1
      107         IS=ICT + ICT-NA + 2 -IB
      108         IST=IS+NA-ICT-1
      109         DO 606 K=IS,IST
      110     606 G[I,K]=2.0-G[I,K]
      111         IB=IB+ICT
      112         ICT=ICT+1
      113     607 CONTINUE
      114     605 CONTINUE
      115         PK[1] = 0.0
      116         DO 70, I=1,NP
      117      70 PK[1] = R[I]+PK[1]
      118         DO 71 J=2,NA+1
      119         PK[J] = 0.0
      120         DO 72 I=1,NP
      121      72 PK[J] = PK[J] + R[I]-G[J-1,I]
      122      71 CONTINUE
      123         IB = 0
      124         ICT = 1
      125         DO 76 J=1,NA
      126         DO 75 K=J,NA
      127         LA = [J-1]-NA-IB+K+NA+1
      128         PK[LA] = 0.0
      129         DO 77, I=1,NP
      130      77 PK[LA] = PK[LA] + R[I]-G[K,I]-G[J,I]
      131      75 CONTINUE
      132         IB = IB+ICT
      133         ICT = ICT+1
      134      76 CONTINUE
      135         PRINT 510
      136         PRINT 78
      137      78 FORMAT ($          KNOWN LHS COEFFICIENTS$)
      138         PRINT 101, [[I,PK[I]],I=1,NB]
      139     101 FORMAT [10X,I5,10X,E14.6]
      140         PRINT 79
      141      79 FORMAT [$       COEFFICIENT MATRIX$]
      142         L=NB/2
      143         DO 54 K=1,2
      144         DO 54 M=1,2
      145         PRINT 510
      146         DO 55 I=[K-1]-L + 1,K-L
      147         PRINT 47, [G[I,J],J=[M-1]-L + 1, M-L]
      148      47 FORMAT [5X,14[1X,F6.1]]
      149      55 CONTINUE
      150      54 CONTINUE
      151         DO 46 K=1,NB
      152         DO 45 I=1,NB
      153         J = [K-1]-NB + I
      154      45 A[J] = G[I,K]
      155      46 CONTINUE
      156   C     SOLVE THE SET OF NB LINEAR EQUATIONS BY ELIMINATION, USEING
      157   C     THE LARGEST PIVOTAL DIVISOR.
      158   C     ADAPTED FROM 360 SCIENTIFIC SUBROUTINE SIMQ
```

```
      159         FORWARD SOLUTION
      160         TOL = 0.0
      161         KS = 0
      162         JJ = -NB
      163         DO 166, J=1,NNBBB
      164         JY = J+1
      165         JJ = JJ + NB+1
      166         BIGA = 0.0
      167         IT = JJ - J
      168         DO 130, I=J,NB
      169   C     SEARCH FOR MAXIMUM COEFFICIENT IN COLUMN
      170         IJ = IT+I
      171         IF (ABS(BIGA) - ABS(A(IJ))) 120,130,130
      172     120 BIGA = A(IJ)
      173         IMAX = I
      174     130 CONTINUE
      175   C     TEST FOR PIVOT LESS THAN DIFFERENCE
      176         IF (ABS(BIGA) - TOL) 135,135,140
      177     135 KS = 1
      178         STOP
      179   C     INTERCHANGE ROWS IF NECESSARY
      180     140 I1=J+ NB*(J-2)
      181         IT = IMAX-J
      182         DO 150, K=J,NB
      183         I1 = I1 + NB
      184         I2 = I1 + IT
      185         SAVE = A(I1)
      186         A(I1) = A(I2)
      187         A(I2) = SAVE
      188   C     DIVIDE EQUATION BY LEADING COEFFICIENT
      189     150 A(I1) = A(I1)/BIGA
      190         SAVE = PK(IMAX)
      191         PK(IMAX) = PK(J)
      192         PK(J) = SAVE/BIGA
      193   C     ELIMINATE NEXT VARIABLE
      194         IF (J-NB) 155,170,155
      195     155 IQS = NB*(J-1)
      196         DO 165, IX = JY,NB
      197         IXJ = IQS+IX
      198         IT = J-IX
      199         DO 160 JX=JY,NB
      200         IXJX = NB*(JX-1) + IX
      201         JJX = IXJX + IT
      202     160 A(IXJX) = A(IXJX) - A(IXJ)*A(JJX)
      203     165 PK(IX) = PK(IX) - PK(J)*A(IXJ)
      204     166 CONTINUE
      205   C     BACK SOLUTION
      206     170 NY = NB-1
      207         IT = NB*NB
      208         DO 180, J=1,NY
      209         IL = IT-J
      210         IM = NB-J
      211         IC = NB
      212         DO 180 K=1,J
```

```
      PK(IM) = PK(IM) + A(IL)*PK(IC)
      IL = IL+NS
      IC = IC+1
      PRINT VARIABLES
      PRINT 510
      PRINT 80
   80 FORMAT ($       SOLUTION TO UNKNOWN COEFFICIENTS$)
      DO 515 I=1,NB
  515 PRINT 516, (I,PK(I))
  516 FORMAT (15X,I8,10X,E16.7)
      PK(I) I=1,2,3,.... NB    NOW CONTAINS THE DESIRED COEFFICIENTS
      WRITE TAPE 5, (IENS,(PK(I),I=1,NB))
      PRINT 510
      PRINT 81
   81 FORMAT ($       TEST OF QUADRATIC REGRESSION MODEL$)
      PRINT 82
   82 FORMAT ($    DATA NUMBER    TRUE VALUE    COMPUTED VALUE    ERROR$
     1)
      VAR=0.0
      DO 380 M=1,NP
      AE=PK(1)
      DO 376 I=2,NA+1
  376 AE=G(I-1,M)*PK(I) + AE
      IB=0
      ICT=1
      DO 378 I=1,NA
      DO 379 J=I,NA
      K=I*NA + J -IB + 1
      IF (I-J) 630,631,630
  631 AE= AE+ G(I,M)*G(J,M)*PK(K)
      GO TO 379
  630 AE=AE + 2.*G(I,M)*G(J,M)*PK(K)
  379 CONTINUE
      IB=IB+ICT
  378 ICT=ICT+1
      ERR=R(M)-AE
      VAR=VAR+ERR*ERR
      PRINT 381,  (M,R(M),AE,ERR)
  381 FORMAT  (10X,I5,3(10X,F10.4))
  380 CONTINUE
      VAR=VAR/ANP
      PRINT 87, VAR
   87 FORMAT (//,$         VARIANCE=    $, F10.4)
      GO TO 5
  510 FORMAT (1H1)
      END
```

PROGRAM ALLOCATION

00021	G	00021	A	03431	G	05235	R
05461	PK	05545	R1	05711	NA	05712	NP
05713	NB	05714	IENS	05715	I	05716	J
05717	L	05720	M	05721	K	05722	IB

```
05723 ICT       05724 LA        05725 LB        05726 IB1
05727 ICT1      05730 IS        05731 IST       05732 KS
05733 JJ        05734 NNBBB     05735 JY        05736 IT
05737 IJ        05740 IMAX      05741 I1        05742 I2
05743 IBS       05744 IX        05745 IXJ       05746 JX
05747 IXJX      05750 JJX       05751 NY        05752 IL
05753 IM        05754 IC        05755 ANP       05757 TOL
05761 BIGA      05763 SAVE      05765 VAR       05767 AE
05771 ERR
```

SUBPROGRAMS REQUIRED

ABS

APPENDIX 30

INTERMEDIATE RESULTS OF A QUADRATIC REGRESSION ANALYSIS EXPERIMENT USING THE STATISTICALLY GENERATED BTS DATA GIVEN IN TABLE XXVIII OF THE TEXT

(live data input specified in Fig. 14)

KNOWN LOAD COEFFICIENTS

1	0.3775[illegible]E 04
2	0.3151[illegible]E 04
3	0.2303[illegible]E 04
4	0.1861[illegible]E 04
5	0.1732[illegible]E 04
6	0.4663[illegible]E 03
7	0.1365[illegible]E 04
8	0.2663[illegible]E 04
9	0.1938[illegible]E 04
10	0.1556[illegible]E 04
11	0.1529[illegible]E 04
12	0.3791[illegible]E 03
13	0.1127[illegible]E 04
14	0.1426[illegible]E 04
15	0.1137[illegible]E 04
16	0.1117[illegible]E 04
17	0.2694[illegible]E 03
18	0.8193[illegible]E 03
19	0.9165[illegible]E 03
20	0.9033[illegible]E 03
21	0.2290[illegible]E 03
22	0.6732[illegible]E 03
23	0.5905[illegible]E 03
24	0.2766[illegible]E 03
25	0.6636[illegible]E 03
26	0.7646[illegible]E 02
27	0.1816[illegible]E 03
28	0.5116[illegible]E 03

COEFFICIENT MATRIX

5[illegible]	41.1	29.9	24.6	24.3	6.7	1[illegible].7	34.3	49.6	40.6	40.0	10.8	30.[illegible]	18.1
41.1	34.3	24.[illegible]	20.3	20.0	5.4	1[illegible].2	28.9	41.6	33.9	33.3	8.7	25.0	15.2
29.9	24.6	18.1	14.7	14.5	3.8	11.0	20.8	30.3	24.5	24.1	6.2	18.[illegible]	11.2
24.6	20.3	14.7	12.1	12.0	3.3	[illegible].2	16.9	24.5	20.0	19.7	5.3	15.[illegible]	8.9
24.3	20.0	14.5	12.0	11.8	3.3	[illegible].1	16.6	24.1	19.7	19.4	5.2	14.3	8.8
[illegible].7	5.4	3.[illegible]	3.3	3.3	1.2	[illegible].7	4.4	6.2	5.3	5.2	1.[illegible]	[illegible].3	2.2
16.7	15.2	11.0	9.2	9.1	2.7	7.2	12.5	18.0	15.0	14.8	4.3	11.[illegible]	6.5
34.[illegible]	28.9	20.[illegible]	16.9	16.6	4.4	1[illegible].[illegible]	24.6	35.4	28.6	28.1	7.2	20.[illegible]	12.8
24.[illegible]	20.8	15.[illegible]	12.2	12.0	3.1	[illegible].0	17.7	25.7	20.6	20.2	5.0	14.[illegible]	9.4
20.3	16.9	12.[illegible]	10.0	9.9	2.6	7.5	14.3	20.6	16.7	16.4	4.3	12.[illegible]	7.5
20.0	16.6	12.[illegible]	9.9	9.7	2.6	7.4	14.0	20.2	16.4	16.2	4.2	12.2	7.4
5.4	4.4	3.1	2.6	2.6	0.9	[illegible].1	3.6	5.0	4.3	4.2	1.[illegible]	3.[illegible]	1.8
15.2	12.5	9.[illegible]	7.5	7.4	2.1	[illegible].8	10.4	14.9	12.4	12.2	3.[illegible]	9.[illegible]	5.4
16.1	15.2	11.2	8.9	8.[illegible]	2.2	[illegible].5	12.8	18.8	15.0	14.7	3.6	10.[illegible]	7.0

29.[illegible]	29.0	7.[illegible]	21.9	17.1	23.9	6.6	17.4	11.8	6.5	18.2	1.2	5.[illegible]	7.2
24.[illegible]	24.1	6.2	18.0	10.[illegible]	19.7	[illegible].3	15.0	9.7	5.2	14.8	0.9	4.[illegible]	5.8
17.9	17.6	4.4	13.1	7.3	14.3	3.8	10.8	7.1	3.7	10.7	0.6	3.[illegible]	4.2
14.5	14.3	3.8	10.8	6.[illegible]	11.8	3.2	9.1	5.8	3.2	8.9	0.6	2.6	3.6
14.3	14.1	3.7	10.7	5.9	11.6	3.2	8.9	5.8	3.2	8.9	0.6	2.6	3.5
[illegible].6	3.7	1.[illegible]	3.0	1.6	3.2	1.1	2.6	1.6	1.1	2.6	0.2	1.[illegible]	1.1
10.[illegible]	10.7	3.[illegible]	[illegible].3	4.5	8.9	[illegible].6	7.1	4.4	2.6	7.0	0.5	2.[illegible]	2.9
2[illegible].6	20.2	5.[illegible]	14.9	8.4	16.4	4.3	12.4	8.1	4.2	12.2	0.7	3.4	4.7
15.[illegible]	14.7	3.6	10.8	6.[illegible]	11.9	3.[illegible]	8.9	5.9	3.0	8.7	0.5	2.4	3.4
12.1	11.9	3.[illegible]	8.9	5.[illegible]	9.7	[illegible].6	7.4	4.8	2.6	7.3	0.4	2.1	2.9
11.9	11.7	3.[illegible]	8.7	4.9	9.6	[illegible].6	7.3	4.7	2.5	7.2	0.4	2.1	2.8
3.[illegible]	3.[illegible]	1.[illegible]	2.4	1.3	2.6	[illegible].9	2.1	1.3	0.9	2.1	0.2	[illegible].7	0.9
[illegible].9	8.7	2.4	6.8	3.7	7.3	[illegible].1	5.7	3.6	2.1	5.7	0.4	1.7	2.3
11.[illegible]	10.8	2.[illegible]	7.9	4.4	8.7	[illegible].2	6.4	4.3	[illegible].1	6.4	0.4	1.7	2.4

14.7	12.2	8.9	7.3	7.2	1.9	5.4	10.3	15.0	12.1	11.9	3.0	8.9	5.5
14.5	12.0	8.8	7.2	7.1	1.9	5.3	10.1	14.7	11.9	11.7	3.0	8.7	5.4
3.8	3.1	2.2	1.9	1.9	0.6	1.5	2.5	3.6	3.0	3.0	1.0	2.4	1.3
11.0	9.0	6.5	5.4	5.3	1.5	4.2	7.5	10.8	8.9	8.7	2.4	6.8	4.0
12.1	10.0	7.3	6.0	5.9	1.6	4.5	8.4	12.1	9.9	9.7	2.6	7.4	4.4
12.0	9.9	7.2	5.9	5.8	1.6	4.5	8.2	11.9	9.7	9.6	2.6	7.3	4.3
3.3	2.6	1.9	1.6	1.6	0.6	1.3	2.1	3.0	2.6	2.6	0.9	2.1	1.1
9.2	7.5	5.4	4.5	4.5	1.3	3.6	6.2	8.9	7.4	7.3	2.1	5.7	3.2
11.6	9.7	7.1	5.8	5.8	1.6	4.4	8.1	11.7	9.6	9.5	2.5	7.2	4.3
3.3	2.6	1.9	1.6	1.6	0.6	1.3	2.1	3.0	2.6	2.5	0.9	2.1	1.1
9.1	7.4	5.3	4.5	4.4	1.3	3.5	6.1	8.7	7.3	7.2	2.1	5.7	3.2
1.2	0.9	0.6	0.6	0.6	0.2	0.5	0.7	1.0	0.9	0.9	0.3	0.7	0.4
2.7	2.1	1.5	1.3	1.3	0.5	1.1	1.7	2.4	2.1	2.1	0.7	1.7	0.9
7.2	5.8	4.2	3.6	3.5	1.1	2.9	4.7	6.8	5.7	5.7	1.7	4.6	2.4

8.8	8.7	2.2	6.4	3.6	7.1	1.8	5.3	3.5	1.8	5.3	0.3	1.5	2.1
8.7	8.5	2.1	6.4	3.5	7.0	1.8	5.3	3.4	1.8	5.2	0.3	1.5	2.0
2.2	2.1	0.7	1.7	0.9	1.8	0.6	1.5	0.9	0.6	1.5	0.1	0.5	0.6
6.4	6.4	1.7	4.9	2.7	5.3	1.5	4.1	2.6	1.5	4.1	0.3	1.2	1.6
7.2	7.1	1.8	5.3	3.0	5.8	1.6	4.5	2.9	1.6	4.4	0.3	1.3	1.8
7.1	7.0	1.8	5.3	2.9	5.7	1.6	4.4	2.8	1.6	4.4	0.3	1.3	1.7
1.8	1.8	0.6	1.5	0.8	1.6	0.6	1.3	0.8	0.5	1.3	0.1	0.5	0.5
5.3	5.3	1.5	4.1	2.2	4.4	1.3	3.5	2.2	1.3	3.5	0.2	1.1	1.4
7.0	6.9	1.8	5.2	2.9	5.7	1.6	4.4	2.8	1.6	4.3	0.3	1.3	1.7
1.8	1.8	0.6	1.5	0.8	1.6	0.5	1.3	0.8	0.5	1.3	0.1	0.5	0.5
5.3	5.2	1.5	4.1	2.2	4.4	1.3	3.5	2.2	1.3	3.4	0.2	1.1	1.4
0.6	0.6	0.2	0.5	0.3	0.5	0.2	0.5	0.3	0.2	0.5	0.0	0.2	0.2
1.5	1.5	0.5	1.2	0.6	1.3	0.5	1.1	0.6	0.5	1.1	0.0	0.4	0.5
4.1	4.1	1.2	3.3	1.8	3.5	1.1	2.8	1.7	1.1	2.8	0.2	0.9	1.2

SOLUTION TO UNKNOWN COEFFICIENTS

1	0.6444813E 02
2	0.1388209E 03
3	0.9395811E 03
4	-0.1049625E 04
5	-0.6849386E 03
6	-0.1037148E 04
7	0.8719187E 03
8	0.3018811E 03
9	0.2089755E 02
10	-0.3568281E 03
11	-0.4326201E 03
12	0.5458791E 01
13	0.2110256E 03
14	-0.6293606E 03
15	0.1982999E 03
16	-0.2532245E 03
17	-0.1806274E 03
18	-0.1104619E 03
19	-0.1462393E 04
20	0.2768813E 04
21	0.4337550E 03
22	-0.4104098E 02
23	-0.1571813E 03
24	0.9253587E 03
25	-0.1476797E 04
26	0.2424474E 03
27	-0.2703663E 03
28	0.5233782E 03

APPENDIX 31

TARGET SCORES AND ASSOCIATED DATA VALUES USED FOR EVALUATION OF THE LINEAR PROPORTIONAL ADJUSTMENT SYSTEM

SCORE	INPUT DATA	NINE LINEAR DATA VALUES							
100.0	10.000	10.000	-6.000	30.500	0.400	0.100	0.700	0.400	1.500
99.0	9.900	-9.900	-5.950	30.200	0.400	0.200	0.700	0.300	1.500
98.0	9.800	-9.800	-5.900	29.900	0.400	0.300	0.700	0.200	1.500
97.0	9.700	-9.700	-5.850	29.600	0.400	0.400	0.700	0.100	1.500
96.0	9.600	-9.600	-5.800	29.300	0.400	0.500	0.700	0.000	1.500
95.0	9.500	-9.500	-5.750	29.000	0.400	0.600	0.700	-0.100	1.500
94.0	9.400	-9.400	-5.700	28.700	0.400	0.700	0.700	-0.200	1.500
93.0	9.300	-9.300	-5.650	28.400	0.400	0.800	0.700	-0.300	1.500
92.0	9.200	-9.200	-5.600	28.100	0.400	0.900	0.700	-0.400	1.500
91.0	9.100	-9.100	-5.550	27.800	0.400	1.000	0.700	-0.500	1.500
90.0	9.000	-9.000	-5.500	27.500	0.400	1.100	0.700	-0.600	1.500
89.0	8.900	-8.900	-5.450	27.200	0.400	1.200	0.700	-0.700	1.500
88.0	8.800	-8.800	-5.400	26.900	0.400	1.300	0.700	-0.800	1.500
87.0	8.700	-8.700	-5.350	26.600	0.400	1.400	0.700	-0.900	1.500
86.0	8.600	-8.600	-5.300	26.300	0.400	1.500	0.700	-1.000	1.500
85.0	8.500	-8.500	-5.250	26.000	0.400	1.600	0.700	-1.100	1.500
84.0	8.400	-8.400	-5.200	25.700	0.400	1.700	0.700	-1.200	1.500
83.0	8.300	-8.300	-5.150	25.400	0.400	1.800	0.700	-1.300	1.500
82.0	8.200	-8.200	-5.100	25.100	0.400	1.900	0.700	-1.400	1.500
81.0	8.100	-8.100	-5.050	24.800	0.400	2.000	0.700	-1.500	1.500
80.0	8.000	-8.000	-5.000	24.500	0.400	2.100	0.700	-1.600	1.500
79.0	7.900	-7.900	-4.950	24.200	0.400	2.200	0.700	-1.700	1.500
78.0	7.800	-7.800	-4.900	23.900	0.400	2.300	0.700	-1.800	1.500
77.0	7.700	-7.700	-4.850	23.600	0.400	2.400	0.700	-1.900	1.500
76.0	7.600	-7.600	-4.800	23.300	0.400	2.500	0.700	-2.000	1.500
75.0	7.500	-7.500	-4.750	23.000	0.400	2.600	0.700	-2.100	1.500
74.0	7.400	-7.400	-4.700	22.700	0.400	2.700	0.700	-2.200	1.500
73.0	7.300	-7.300	-4.650	22.400	0.400	2.800	0.700	-2.300	1.500
72.0	7.200	-7.200	-4.600	22.100	0.400	2.900	0.700	-2.400	1.500
71.0	7.100	-7.100	-4.550	21.800	0.400	3.000	0.700	-2.500	1.500
70.0	7.000	-7.000	-4.500	21.500	0.400	3.100	0.700	-2.600	1.500
69.0	6.900	-6.900	-4.450	21.200	0.400	3.200	0.700	-2.700	1.500
68.0	6.800	-6.800	-4.400	20.900	0.400	3.300	0.700	-2.800	1.500
67.0	6.700	-6.700	-4.350	20.600	0.400	3.400	0.700	-2.900	1.500
66.0	6.600	-6.600	-4.300	20.300	0.400	3.500	0.700	-3.000	1.500
65.0	6.500	-6.500	-4.250	20.000	0.400	3.600	0.700	-3.100	1.500
64.0	6.400	-6.400	-4.200	19.700	0.400	3.700	0.700	-3.200	1.500
63.0	6.300	-6.300	-4.150	19.400	0.400	3.800	0.700	-3.300	1.500
62.0	6.200	-6.200	-4.100	19.100	0.400	3.900	0.700	-3.400	1.500
61.0	6.100	-6.100	-4.050	18.800	0.400	4.000	0.700	-3.500	1.500
60.0	6.000	-6.000	-4.000	18.500	0.400	4.100	0.700	-3.600	1.500
59.0	5.900	-5.900	-3.950	18.200	0.400	4.200	0.700	-3.700	1.500
58.0	5.800	-5.800	-3.900	17.900	0.400	4.300	0.700	-3.800	1.500
57.0	5.700	-5.700	-3.850	17.600	0.400	4.400	0.700	-3.900	1.500
56.0	5.600	-5.600	-3.800	17.300	0.400	4.500	0.700	-4.000	1.500
55.0	5.500	-5.500	-3.750	17.000	0.400	4.600	0.700	-4.100	1.500
54.0	5.400	-5.400	-3.700	16.700	0.400	4.700	0.700	-4.200	1.500
53.0	5.300	-5.300	-3.650	16.400	0.400	4.800	0.700	-4.300	1.500
52.0	5.200	-5.200	-3.600	16.100	0.400	4.900	0.700	-4.400	1.500
51.0	5.100	-5.100	-3.550	15.800	0.400	5.000	0.700	-4.500	1.500
50.0	5.000	-5.000	-3.500	15.500	0.400	5.100	0.700	-4.600	1.500
49.0	4.900	-4.900	-3.450	15.200	0.400	5.200	0.700	-4.700	1.500

48.0	4.800	-4.800	-3.400	14.900	0.400	5.300	0.700	-4.800	1.500
47.0	4.700	-4.700	-3.350	14.600	0.400	5.400	0.700	-4.900	1.500
46.0	4.600	-4.600	-3.300	14.300	0.400	5.500	0.700	-5.000	1.500
45.0	4.500	-4.500	-3.250	14.000	0.400	5.600	0.700	-5.100	1.500
44.0	4.400	-4.400	-3.200	13.700	0.400	5.700	0.700	-5.200	1.500
43.0	4.300	-4.300	-3.150	13.400	0.400	5.800	0.700	-5.300	1.500
42.0	4.200	-4.200	-3.100	13.100	0.400	5.900	0.700	-5.400	1.500
41.0	4.100	-4.100	-3.050	12.800	0.400	6.000	0.700	-5.500	1.500
40.0	4.000	-4.000	-3.000	12.500	0.400	6.100	0.700	-5.600	1.500
39.0	3.900	-3.900	-2.950	12.200	0.400	6.200	0.700	-5.700	1.500
38.0	3.800	-3.800	-2.900	11.900	0.400	6.300	0.700	-5.800	1.500
37.0	3.700	-3.700	-2.850	11.600	0.400	6.400	0.700	-5.900	1.500
36.0	3.600	-3.600	-2.800	11.300	0.400	6.500	0.700	-6.000	1.500
35.0	3.500	-3.500	-2.750	11.000	0.400	6.600	0.700	-6.100	1.500
34.0	3.400	-3.400	-2.700	10.700	0.400	6.700	0.700	-6.200	1.500
33.0	3.300	-3.300	-2.650	10.400	0.400	6.800	0.700	-6.300	1.500
32.0	3.200	-3.200	-2.600	10.100	0.400	6.900	0.700	-6.400	1.500
31.0	3.100	-3.100	-2.550	9.800	0.400	7.000	0.700	-6.500	1.500
30.0	3.000	-3.000	-2.500	9.500	0.400	7.100	0.700	-6.600	1.500
29.0	2.900	-2.900	-2.450	9.200	0.400	7.200	0.700	-6.700	1.500
28.0	2.800	-2.800	-2.400	8.900	0.400	7.300	0.700	-6.800	1.500
27.0	2.700	-2.700	-2.350	8.600	0.400	7.400	0.700	-6.900	1.500
26.0	2.600	-2.600	-2.300	8.300	0.400	7.500	0.700	-7.000	1.500
25.0	2.500	-2.500	-2.250	8.000	0.400	7.600	0.700	-7.100	1.500
24.0	2.400	-2.400	-2.200	7.700	0.400	7.700	0.700	-7.200	1.500
23.0	2.300	-2.300	-2.150	7.400	0.400	7.800	0.700	-7.300	1.500
22.0	2.200	-2.200	-2.100	7.100	0.400	7.900	0.700	-7.400	1.500
21.0	2.100	-2.100	-2.050	6.800	0.400	8.000	0.700	-7.500	1.500
20.0	2.000	-2.000	-2.000	6.500	0.400	8.100	0.700	-7.600	1.500
19.0	1.900	-1.900	-1.950	6.200	0.400	8.200	0.700	-7.700	1.500
18.0	1.800	-1.800	-1.900	5.900	0.400	8.300	0.700	-7.800	1.500
17.0	1.700	-1.700	-1.850	5.600	0.400	8.400	0.700	-7.900	1.500
16.0	1.600	-1.600	-1.800	5.300	0.400	8.500	0.700	-8.000	1.500
15.0	1.500	-1.500	-1.750	5.000	0.400	8.600	0.700	-8.100	1.500
14.0	1.400	-1.400	-1.700	4.700	0.400	8.700	0.700	-8.200	1.500
13.0	1.300	-1.300	-1.650	4.400	0.400	8.800	0.700	-8.300	1.500
12.0	1.200	-1.200	-1.600	4.100	0.400	8.900	0.700	-8.400	1.500
11.0	1.100	-1.100	-1.550	3.800	0.400	9.000	0.700	-8.500	1.500
10.0	1.000	-1.000	-1.500	3.500	0.400	9.100	0.700	-8.600	1.500
9.0	0.900	-0.900	-1.450	3.200	0.400	9.200	0.700	-8.700	1.500
8.0	0.800	-0.800	-1.400	2.900	0.400	9.300	0.700	-8.800	1.500
7.0	0.700	-0.700	-1.350	2.600	0.400	9.400	0.700	-8.900	1.500
6.0	0.600	-0.600	-1.300	2.300	0.400	9.500	0.700	-9.000	1.500
5.0	0.500	-0.500	-1.250	2.000	0.400	9.600	0.700	-9.100	1.500
4.0	0.400	-0.400	-1.200	1.700	0.400	9.700	0.700	-9.200	1.500
3.0	0.300	-0.300	-1.150	1.400	0.400	9.800	0.700	-9.300	1.500
2.0	0.200	-0.200	-1.100	1.100	0.400	9.900	0.700	-9.400	1.500
1.0	0.100	-0.100	-1.050	0.800	0.400	10.000	0.700	-9.500	1.500

APPENDIX 32

PROGRAM FOR EVALUATING THE LINEAR PROPORTIONAL ADJUSTMENT SYSTEM

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▲J88.
▲ASSIGN S=MTO,SI=CR,B0=MT1,L0=LP.
▲FORTRAN SI,L0,B0.
.     1  .       ARS-68 J88 8054. PART 8 PROPORTIONAL ADJUSTMENT FOR DATA FITTING
.     2          DIMENSION G(9,100), S(100), C1(0/9),C2(0/9),C3(0/9)
.     3          READ 1, (C)
.     4        1 FORMAT (F8.5)
.     5  C       C IS MINIMUM VALUE ALLOWED FOR ADJUSTMENT OF COEFFICIENTS
.     6       28 FORMAT (1H1)
.     7  C       GENERATE INPUT DATA
.     8          PRINT 105
.     9      105 FORMAT (1H1,$            INPUT DATA$)
.    10          PRINT 106
.    11      106 FORMAT ($    SCORE            NINE LINEAR DATA VALUES$)
.    12          DO 100 I=1,100
.    13          B=I
.    14          BT = 101 - I
.    15          S(I) = BT
.    16          G(1,I) = 0.1*BT
.    17          G(2,I) = -0.1*BT
.    18          G(3,I) = -0.05*BT - 1.0
.    19          G(4,I) = 0.3*BT + 0.5
.    20          G(5,I) = 0.4
.    21          G(6,I) = 0.1*B
.    22          G(7,I) = 0.7
.    23          G(8,I) = -0.1*B + 0.5
.    24          G(9,I) = 1.5
.    25      100 PRINT 107, (S(I),(G(K,I), K=1,9))
.    26      107 FORMAT (5X,F5.1,9(3X,F6.3))
.    27          DO 405 IADJ=7,13
.    28          ADJ = IADJ
.    29          ADJ = 0.1*ADJ
.    30  C       INITIALIZE THE CONSTANT C1(I)
.    31          SUM = 0.0
.    32          DO 200 I=1,9
.    33      200 SUM = SUM + G(I,1)
.    34          Y = S(1)/(SUM + 1.0)
.    35          DO 201 I=0,9
.    36      201 C1(I) = Y
.    37          DO 400, MA=1,8
.    38          PRINT 28
.    39          PRINT 225, (ADJ,MA)
.    40      225 FORMAT ($     GAIN ADJUSTMENT = $,F7.3,$      ITERATION NO $,
.    41         1I5,//)
.    42          PRINT 226
.    43      226 FORMAT ($  SCORE     ERROR   ERADJ   COEFFICIENTS$)
.    44          DO 205 I=2,100
.    45          SP = C1(0)
.    46          DO 206 J=1,9
.    47      206 SP = SP + G(J,I)*C1(J)
.    48          SE = SP - S(I)
.    49  C       FIND GAIN ADJUST CONSTANT AK
.    50          AL = C1(0)
```

```
*    51          DO 207 J=1,9
*    52      207 AL = AL + C1(J)*G(J,I)*G(J,I)
*    53          AK = (1.07AL)*ADJ
*    54          DO 208 J=1,9
*    55          IF (C1(J) - C) 209,209,210
*    56      210 C1(J) = C1(J) - SE*C1(J)*G(J,I)*AK
*    57          GO TO 208
*    58      209 C1(J) = C1(J) - SE*C - G(J,I)*AK
*    59      208 CONTINUE
*    60          IF (C1(0) - C) 215,215,216
*    61      216 C1(0) = C1(0) - SE*C1(0)*AK
*    62          GO TO 217
*    63      215 C1(0) = C1(0) - SE*C*AK
*    64      217 SP = C1(0)
*    65          DO 218 J=1,9
*    66      218 SP = SP + C1(J)*G(J,I)
*    67          SA = S(I) - SP
*    68    C     SA = PREDICTED SCORE AFTER ADJUSTMENT
*    69          PRINT 220, (S(I), SE, SA, (C1(J), J=0,9))
*    70      220 FORMAT (2X, 3(2X,F7.2),10(1X,F8.3))
*    71      205 CONTINUE
*    72      400 CONTINUE
*    73      405 CONTINUE
*    74          END
```

PROGRAM ALLOCATION

00004 G	03414 S	03724 C1	03750 C2
03774 C3	04020 I	04021 K	04022 IADJ
04023 MA	04024 J	04025 C	04027 B
04031 BT	04033 ADJ	04035 SUM	04037 Y
04041 SP	04043 SE	04045 AL	04047 AK
04051 SA			

APPENDIX 33

FIRST SIX TRAINING ITERATIONS FOR THE LINEAR PROPORTIONAL ADJUSTMENT SYSTEM. GAIN ADJUSTMENT = 0.7
(DATA GIVEN IN APPENDIX 31)

GAIN ADJUSTMENT = 0.700 ITERATION NO 1

SCORE	ERROR	ERADJ	COEFFICIENTS									
99.00	0.13	+0.03	3.496	3.496	3.497	3.497	3.494	3.496	3.496	3.496	3.496	3.496
98.00	0.16	+0.04	3.496	3.495	3.498	3.498	3.491	3.496	3.496	3.496	3.496	3.496
97.00	0.18	+0.05	3.496	3.494	3.499	3.498	3.488	3.496	3.496	3.496	3.496	3.496
96.00	0.18	+0.05	3.496	3.493	3.500	3.499	3.484	3.496	3.496	3.496	3.496	3.496
95.00	0.19	+0.05	3.496	3.491	3.502	3.500	3.481	3.496	3.496	3.496	3.496	3.496
94.00	0.19	+0.05	3.496	3.490	3.503	3.500	3.477	3.496	3.496	3.496	3.496	3.496
93.00	0.19	+0.05	3.496	3.489	3.504	3.501	3.473	3.496	3.496	3.496	3.497	3.495
92.00	0.19	+0.05	3.496	3.488	3.505	3.502	3.470	3.496	3.496	3.496	3.497	3.495
91.00	0.19	+0.05	3.495	3.486	3.507	3.503	3.466	3.496	3.496	3.496	3.497	3.495
90.00	0.20	+0.05	3.495	3.485	3.508	3.503	3.462	3.496	3.496	3.496	3.497	3.495
89.00	0.20	+0.05	3.495	3.484	3.509	3.504	3.458	3.496	3.495	3.496	3.497	3.494
88.00	0.20	+0.06	3.495	3.482	3.511	3.505	3.454	3.496	3.495	3.495	3.497	3.494
87.00	0.20	+0.06	3.495	3.481	3.512	3.506	3.450	3.496	3.495	3.495	3.497	3.494
86.00	0.20	+0.06	3.495	3.480	3.513	3.507	3.445	3.496	3.495	3.495	3.497	3.494
85.00	0.21	+0.06	3.494	3.478	3.515	3.508	3.441	3.496	3.495	3.495	3.497	3.493
84.00	0.21	+0.06	3.494	3.477	3.516	3.509	3.436	3.496	3.494	3.495	3.498	3.493
83.00	0.21	+0.06	3.494	3.475	3.518	3.510	3.432	3.496	3.494	3.495	3.498	3.493
82.00	0.21	+0.06	3.494	3.474	3.519	3.511	3.427	3.495	3.494	3.495	3.498	3.493
81.00	0.22	+0.06	3.494	3.472	3.521	3.512	3.423	3.495	3.493	3.495	3.498	3.492
80.00	0.22	+0.06	3.494	3.471	3.523	3.513	3.418	3.495	3.493	3.494	3.499	3.492
79.00	0.22	+0.06	3.493	3.469	3.524	3.514	3.413	3.495	3.492	3.494	3.499	3.492
78.00	0.22	+0.06	3.493	3.467	3.526	3.515	3.408	3.495	3.492	3.494	3.500	3.491
77.00	0.23	+0.06	3.493	3.465	3.528	3.516	3.402	3.495	3.491	3.494	3.500	3.491
76.00	0.23	+0.06	3.493	3.464	3.530	3.517	3.397	3.495	3.491	3.494	3.500	3.491
75.00	0.23	+0.06	3.492	3.462	3.531	3.518	3.392	3.495	3.490	3.494	3.501	3.490
74.00	0.23	+0.07	3.492	3.460	3.533	3.519	3.386	3.495	3.489	3.493	3.502	3.490
73.00	0.24	+0.07	3.492	3.458	3.535	3.520	3.380	3.495	3.489	3.493	3.502	3.490
72.00	0.24	+0.07	3.492	3.456	3.537	3.522	3.375	3.495	3.488	3.493	3.503	3.489
71.00	0.24	+0.07	3.491	3.454	3.539	3.523	3.369	3.494	3.487	3.493	3.503	3.489
70.00	0.25	+0.07	3.491	3.452	3.541	3.524	3.363	3.494	3.486	3.493	3.504	3.488
69.00	0.25	+0.07	3.491	3.450	3.543	3.526	3.356	3.494	3.485	3.492	3.505	3.488
68.00	0.25	+0.07	3.490	3.448	3.546	3.527	3.350	3.494	3.484	3.492	3.506	3.487
67.00	0.25	+0.07	3.490	3.446	3.548	3.529	3.343	3.494	3.483	3.492	3.507	3.487
66.00	0.26	+0.07	3.490	3.444	3.550	3.530	3.337	3.494	3.482	3.492	3.508	3.486
65.00	0.26	+0.07	3.489	3.441	3.553	3.532	3.330	3.494	3.480	3.492	3.509	3.486
64.00	0.26	+0.07	3.489	3.439	3.555	3.533	3.323	3.494	3.479	3.491	3.510	3.485
63.00	0.27	+0.08	3.489	3.437	3.557	3.535	3.316	3.493	3.478	3.491	3.512	3.485
62.00	0.27	+0.08	3.488	3.434	3.560	3.536	3.309	3.493	3.476	3.491	3.513	3.484
61.00	0.27	+0.08	3.488	3.432	3.563	3.538	3.301	3.493	3.474	3.490	3.514	3.484
60.00	0.28	+0.08	3.487	3.429	3.565	3.540	3.293	3.493	3.473	3.490	3.516	3.483
59.00	0.28	+0.08	3.487	3.426	3.568	3.542	3.286	3.493	3.471	3.490	3.518	3.482
58.00	0.29	+0.08	3.486	3.424	3.571	3.544	3.278	3.492	3.469	3.489	3.519	3.481
57.00	0.29	+0.08	3.486	3.421	3.574	3.546	3.269	3.492	3.467	3.489	3.521	3.481
56.00	0.29	+0.08	3.485	3.418	3.577	3.548	3.261	3.492	3.464	3.489	3.524	3.480
55.00	0.30	+0.08	3.485	3.415	3.580	3.550	3.253	3.492	3.462	3.488	3.526	3.479
54.00	0.30	+0.09	3.484	3.412	3.583	3.552	3.244	3.492	3.459	3.488	3.528	3.478
53.00	0.30	+0.09	3.484	3.409	3.586	3.554	3.235	3.491	3.456	3.488	3.531	3.477
52.00	0.31	+0.09	3.483	3.406	3.589	3.556	3.226	3.491	3.453	3.487	3.533	3.477
51.00	0.31	+0.09	3.483	3.403	3.593	3.558	3.217	3.491	3.450	3.487	3.536	3.476

GAIN ADJUSTMENT = 0.700 ITERATION NO 2

SCORE	ERROR	ERADJ	COEFFICIENTS									
99.00	-27.75	8.33	3.433	3.441	3.541	3.584	3.272	3.471	2.951	3.452	4.102	3.402
98.00	-8.23	2.47	3.439	3.493	3.488	3.552	3.423	3.473	2.953	3.456	4.104	3.410
97.00	-2.44	0.73	3.440	3.508	3.472	3.542	3.469	3.474	2.953	3.457	4.104	3.412
96.00	-0.71	0.21	3.441	3.513	3.468	3.539	3.483	3.474	2.954	3.457	4.104	3.413
95.00	-0.20	0.06	3.441	3.514	3.467	3.539	3.486	3.474	2.954	3.457	4.104	3.413
94.00	-0.04	0.01	3.441	3.514	3.466	3.538	3.487	3.474	2.954	3.458	4.104	3.413
93.00	-0.00	0.00	3.441	3.514	3.466	3.538	3.487	3.474	2.954	3.458	4.104	3.413
92.00	0.00	-0.00	3.441	3.514	3.466	3.539	3.487	3.474	2.954	3.458	4.104	3.413
91.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.487	3.474	2.954	3.458	4.104	3.413
90.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.487	3.474	2.954	3.457	4.104	3.413
89.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.486	3.474	2.954	3.457	4.104	3.413
88.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.486	3.474	2.954	3.457	4.104	3.413
87.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.486	3.474	2.954	3.457	4.104	3.413
86.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.485	3.474	2.954	3.457	4.104	3.413
85.00	0.01	-0.00	3.441	3.514	3.467	3.539	3.485	3.474	2.954	3.457	4.104	3.413
84.00	0.01	-0.00	3.441	3.513	3.467	3.539	3.485	3.474	2.954	3.457	4.104	3.413
83.00	0.01	-0.00	3.441	3.513	3.467	3.539	3.484	3.474	2.954	3.457	4.104	3.413
82.00	0.01	-0.00	3.441	3.513	3.468	3.539	3.484	3.474	2.953	3.457	4.104	3.413
81.00	0.01	-0.00	3.441	3.513	3.468	3.539	3.483	3.474	2.953	3.457	4.104	3.413
80.00	0.01	-0.00	3.441	3.513	3.468	3.539	3.483	3.474	2.953	3.457	4.104	3.413
79.00	0.01	-0.00	3.441	3.513	3.468	3.539	3.483	3.474	2.953	3.457	4.104	3.413
78.00	0.01	-0.00	3.441	3.513	3.468	3.540	3.482	3.474	2.953	3.457	4.104	3.413
77.00	0.01	-0.00	3.441	3.512	3.468	3.540	3.482	3.474	2.953	3.457	4.104	3.413
76.00	0.01	-0.00	3.441	3.512	3.468	3.540	3.481	3.474	2.953	3.457	4.104	3.413
75.00	0.01	-0.00	3.441	3.512	3.468	3.540	3.481	3.474	2.953	3.457	4.104	3.413
74.00	0.01	-0.00	3.441	3.512	3.469	3.540	3.481	3.474	2.953	3.457	4.104	3.413
73.00	0.01	-0.00	3.441	3.512	3.469	3.540	3.480	3.474	2.953	3.457	4.104	3.413
72.00	0.01	-0.00	3.441	3.512	3.469	3.540	3.480	3.474	2.953	3.457	4.104	3.413
71.00	0.01	-0.00	3.441	3.512	3.469	3.540	3.479	3.474	2.953	3.457	4.105	3.413
70.00	0.02	-0.00	3.441	3.511	3.469	3.540	3.479	3.474	2.953	3.457	4.105	3.413
69.00	0.02	-0.00	3.441	3.511	3.469	3.540	3.478	3.474	2.953	3.457	4.105	3.413
68.00	0.02	-0.00	3.441	3.511	3.470	3.541	3.478	3.474	2.953	3.457	4.105	3.413
67.00	0.02	-0.00	3.440	3.511	3.470	3.541	3.477	3.474	2.953	3.457	4.105	3.413
66.00	0.02	-0.00	3.440	3.511	3.470	3.541	3.477	3.474	2.953	3.457	4.105	3.413
65.00	0.02	-0.00	3.440	3.511	3.470	3.541	3.476	3.474	2.953	3.457	4.105	3.413
64.00	0.02	-0.00	3.440	3.510	3.470	3.541	3.475	3.474	2.953	3.457	4.105	3.413
63.00	0.02	-0.00	3.440	3.510	3.470	3.541	3.475	3.474	2.952	3.457	4.105	3.413
62.00	0.02	-0.00	3.440	3.510	3.471	3.541	3.474	3.474	2.952	3.457	4.105	3.413
61.00	0.02	-0.00	3.440	3.510	3.471	3.541	3.474	3.474	2.952	3.457	4.106	3.412
60.00	0.02	-0.00	3.440	3.510	3.471	3.542	3.473	3.474	2.952	3.457	4.106	3.412
59.00	0.02	-0.00	3.440	3.509	3.471	3.542	3.472	3.474	2.952	3.457	4.106	3.412
58.00	0.02	-0.00	3.440	3.509	3.472	3.542	3.472	3.474	2.952	3.457	4.106	3.412
57.00	0.02	-0.00	3.440	3.509	3.472	3.542	3.471	3.474	2.952	3.457	4.106	3.412
56.00	0.02	-0.00	3.440	3.509	3.472	3.542	3.470	3.474	2.952	3.457	4.106	3.412
55.00	0.02	-0.00	3.440	3.508	3.472	3.542	3.470	3.474	2.951	3.457	4.107	3.412
54.00	0.02	-0.00	3.440	3.508	3.472	3.542	3.469	3.474	2.951	3.457	4.107	3.412
53.00	0.02	-0.00	3.440	3.508	3.473	3.543	3.468	3.474	2.951	3.457	4.107	3.412
52.00	0.02	-0.00	3.440	3.508	3.473	3.543	3.467	3.474	2.951	3.457	4.107	3.412
51.00	0.02	-0.00	3.440	3.508	3.473	3.543	3.467	3.474	2.951	3.457	4.108	3.412

50.00	0.32	-0.09	3.482	3.400	3.596	3.561	3.207	3.491	3.447	3.486	3.539	3.475
49.00	0.32	-0.09	3.481	3.396	3.599	3.563	3.197	3.490	3.443	3.486	3.543	3.474
48.00	0.33	-0.09	3.480	3.393	3.603	3.566	3.188	3.490	3.440	3.485	3.546	3.472
47.00	0.33	-0.09	3.480	3.390	3.607	3.568	3.178	3.490	3.436	3.485	3.550	3.471
46.00	0.33	-0.10	3.479	3.386	3.610	3.571	3.167	3.489	3.431	3.484	3.554	3.470
45.00	0.34	-0.10	3.478	3.383	3.614	3.574	3.157	3.489	3.427	3.484	3.558	3.469
44.00	0.34	-0.10	3.477	3.379	3.618	3.576	3.147	3.489	3.422	3.483	3.563	3.468
43.00	0.35	-0.10	3.476	3.375	3.622	3.579	3.136	3.488	3.417	3.482	3.567	3.466
42.00	0.35	-0.11	3.475	3.371	3.626	3.582	3.125	3.488	3.412	3.482	3.573	3.465
41.00	0.36	-0.11	3.475	3.368	3.630	3.585	3.114	3.488	3.406	3.481	3.578	3.464
40.00	0.36	-0.11	3.474	3.364	3.634	3.588	3.103	3.487	3.400	3.480	3.584	3.462
39.00	0.37	-0.11	3.472	3.360	3.639	3.591	3.092	3.487	3.394	3.480	3.590	3.461
38.00	0.37	-0.11	3.471	3.356	3.643	3.595	3.080	3.486	3.387	3.479	3.596	3.459
37.00	0.37	-0.11	3.470	3.352	3.647	3.598	3.069	3.486	3.380	3.478	3.603	3.457
36.00	0.38	-0.11	3.469	3.348	3.652	3.601	3.057	3.486	3.373	3.477	3.610	3.456
35.00	0.38	-0.11	3.468	3.344	3.656	3.605	3.046	3.485	3.365	3.476	3.618	3.454
34.00	0.39	-0.12	3.467	3.340	3.660	3.608	3.034	3.485	3.357	3.476	3.626	3.452
33.00	0.39	-0.12	3.465	3.336	3.665	3.612	3.022	3.484	3.349	3.475	3.634	3.450
32.00	0.40	-0.12	3.464	3.332	3.669	3.615	3.011	3.484	3.340	3.474	3.643	3.448
31.00	0.40	-0.12	3.463	3.328	3.674	3.619	2.999	3.483	3.331	3.473	3.652	3.446
30.00	0.40	-0.12	3.461	3.324	3.678	3.623	2.987	3.482	3.321	3.472	3.662	3.444
29.00	0.41	-0.12	3.460	3.320	3.683	3.626	2.976	3.482	3.311	3.471	3.672	3.442
28.00	0.41	-0.12	3.458	3.316	3.687	3.630	2.965	3.481	3.301	3.470	3.683	3.440
27.00	0.41	-0.12	3.457	3.312	3.691	3.634	2.953	3.481	3.290	3.469	3.694	3.437
26.00	0.42	-0.13	3.455	3.308	3.696	3.638	2.942	3.480	3.279	3.468	3.706	3.435
25.00	0.42	-0.13	3.454	3.304	3.700	3.641	2.932	3.479	3.268	3.467	3.718	3.433
24.00	0.42	-0.13	3.452	3.300	3.704	3.645	2.921	3.479	3.256	3.465	3.731	3.430
23.00	0.43	-0.13	3.450	3.297	3.708	3.649	2.911	3.478	3.244	3.464	3.744	3.428
22.00	0.43	-0.13	3.449	3.293	3.712	3.653	2.901	3.477	3.231	3.463	3.757	3.425
21.00	0.43	-0.13	3.447	3.290	3.716	3.656	2.891	3.477	3.219	3.462	3.771	3.423
20.00	0.43	-0.13	3.445	3.286	3.720	3.660	2.882	3.476	3.206	3.461	3.785	3.420
19.00	0.43	-0.13	3.444	3.283	3.723	3.663	2.873	3.475	3.192	3.459	3.800	3.418
18.00	0.43	-0.13	3.442	3.280	3.727	3.667	2.864	3.475	3.179	3.458	3.815	3.415
17.00	0.44	-0.13	3.440	3.277	3.730	3.670	2.856	3.474	3.165	3.457	3.830	3.412
16.00	0.44	-0.13	3.438	3.275	3.733	3.674	2.848	3.473	3.152	3.456	3.846	3.410
15.00	0.44	-0.13	3.437	3.272	3.736	3.677	2.841	3.472	3.138	3.454	3.862	3.407
14.00	0.44	-0.13	3.435	3.270	3.739	3.680	2.834	3.472	3.124	3.453	3.878	3.404
13.00	0.44	-0.13	3.433	3.268	3.741	3.683	2.828	3.471	3.110	3.452	3.894	3.402
12.00	0.44	-0.13	3.431	3.266	3.743	3.686	2.822	3.470	3.096	3.451	3.911	3.399
11.00	0.43	-0.13	3.430	3.264	3.745	3.689	2.816	3.470	3.082	3.450	3.928	3.397
10.00	0.43	-0.13	3.428	3.262	3.747	3.692	2.811	3.469	3.068	3.448	3.945	3.394
9.00	0.43	-0.13	3.426	3.261	3.749	3.695	2.807	3.468	3.054	3.447	3.961	3.392
8.00	0.43	-0.13	3.425	3.260	3.750	3.697	2.803	3.468	3.040	3.446	3.978	3.389
7.00	0.43	-0.13	3.423	3.259	3.752	3.700	2.800	3.467	3.026	3.445	3.995	3.387
6.00	0.43	-0.13	3.421	3.258	3.753	3.702	2.797	3.466	3.013	3.444	4.012	3.384
5.00	0.42	-0.13	3.420	3.257	3.754	3.704	2.794	3.466	2.999	3.443	4.029	3.382
4.00	0.42	-0.13	3.418	3.256	3.754	3.706	2.792	3.465	2.986	3.442	4.046	3.380
3.00	0.42	-0.13	3.417	3.256	3.755	3.708	2.790	3.464	2.973	3.440	4.063	3.377
2.00	0.41	-0.12	3.415	3.256	3.755	3.710	2.789	3.464	2.961	3.439	4.079	3.375
1.00	0.41	-0.12	3.414	3.255	3.755	3.711	2.788	3.463	2.948	3.438	4.095	3.373

50.00	0.02	-0.00	3.440	3.507	3.473	3.543	3.466	3.474	2.950	3.457	4.108	3.412
49.00	0.02	-0.00	3.440	3.507	3.474	3.543	3.465	3.474	2.950	3.457	4.108	3.412
48.00	0.02	-0.00	3.440	3.507	3.474	3.544	3.464	3.474	2.950	3.457	4.108	3.412
47.00	0.02	-0.00	3.440	3.506	3.474	3.544	3.463	3.474	2.950	3.457	4.109	3.412
46.00	0.02	-0.00	3.440	3.506	3.474	3.544	3.463	3.474	2.949	3.457	4.109	3.411
45.00	0.02	-0.00	3.440	3.506	3.475	3.544	3.462	3.474	2.949	3.457	4.109	3.411
44.00	0.02	-0.00	3.440	3.506	3.475	3.544	3.461	3.474	2.949	3.457	4.110	3.411
43.00	0.02	-0.00	3.439	3.505	3.475	3.545	3.460	3.474	2.948	3.456	4.110	3.411
42.00	0.02	-0.00	3.439	3.505	3.476	3.545	3.459	3.474	2.948	3.456	4.111	3.411
41.00	0.02	-0.00	3.439	3.505	3.476	3.545	3.458	3.474	2.948	3.456	4.111	3.411
40.00	0.02	-0.00	3.439	3.504	3.476	3.545	3.457	3.473	2.947	3.456	4.112	3.411
39.00	0.03	-0.00	3.439	3.504	3.477	3.545	3.456	3.473	2.947	3.456	4.112	3.411
38.00	0.03	-0.00	3.439	3.504	3.477	3.546	3.455	3.473	2.946	3.456	4.113	3.411
37.00	0.03	-0.00	3.439	3.503	3.477	3.546	3.454	3.473	2.946	3.456	4.113	3.411
36.00	0.03	-0.00	3.439	3.503	3.477	3.546	3.453	3.473	2.946	3.456	4.114	3.410
35.00	0.03	-0.00	3.439	3.503	3.478	3.546	3.452	3.473	2.945	3.456	4.115	3.410
34.00	0.03	-0.00	3.439	3.502	3.478	3.547	3.451	3.473	2.944	3.456	4.115	3.410
33.00	0.03	-0.00	3.439	3.502	3.478	3.547	3.450	3.473	2.944	3.456	4.116	3.410
32.00	0.03	-0.00	3.439	3.502	3.479	3.547	3.449	3.473	2.943	3.456	4.117	3.410
31.00	0.03	-0.00	3.438	3.501	3.479	3.548	3.448	3.473	2.943	3.456	4.118	3.410
30.00	0.03	-0.00	3.438	3.501	3.479	3.548	3.447	3.473	2.942	3.456	4.119	3.410
29.00	0.03	-0.01	3.438	3.501	3.480	3.548	3.446	3.473	2.941	3.456	4.119	3.409
28.00	0.03	-0.01	3.438	3.501	3.480	3.548	3.445	3.473	2.941	3.456	4.120	3.409
27.00	0.03	-0.01	3.438	3.500	3.480	3.549	3.444	3.473	2.940	3.455	4.121	3.409
26.00	0.03	-0.01	3.438	3.500	3.481	3.549	3.443	3.473	2.939	3.455	4.122	3.409
25.00	0.03	-0.01	3.438	3.500	3.481	3.549	3.442	3.473	2.938	3.455	4.123	3.409
24.00	0.03	-0.01	3.438	3.499	3.481	3.550	3.441	3.473	2.937	3.455	4.125	3.408
23.00	0.03	-0.01	3.437	3.499	3.482	3.550	3.440	3.473	2.937	3.455	4.126	3.408
22.00	0.03	-0.01	3.437	3.499	3.482	3.550	3.439	3.473	2.936	3.455	4.127	3.408
21.00	0.03	-0.01	3.437	3.498	3.482	3.550	3.438	3.473	2.935	3.455	4.128	3.408
20.00	0.03	-0.01	3.437	3.498	3.482	3.551	3.437	3.473	2.934	3.455	4.129	3.408
19.00	0.03	-0.01	3.437	3.498	3.483	3.551	3.437	3.473	2.933	3.455	4.131	3.407
18.00	0.03	-0.01	3.437	3.498	3.483	3.551	3.436	3.473	2.932	3.455	4.132	3.407
17.00	0.03	-0.01	3.437	3.497	3.483	3.551	3.435	3.472	2.931	3.455	4.133	3.407
16.00	0.03	-0.01	3.436	3.497	3.483	3.552	3.434	3.472	2.930	3.454	4.135	3.407
15.00	0.03	-0.01	3.436	3.497	3.484	3.552	3.433	3.472	2.929	3.454	4.136	3.407
14.00	0.03	-0.01	3.436	3.497	3.484	3.552	3.433	3.472	2.928	3.454	4.137	3.406
13.00	0.03	-0.01	3.436	3.496	3.484	3.553	3.432	3.472	2.927	3.454	4.139	3.406
12.00	0.03	-0.01	3.436	3.496	3.484	3.553	3.432	3.472	2.926	3.454	4.140	3.406
11.00	0.03	-0.01	3.436	3.496	3.484	3.553	3.431	3.472	2.925	3.454	4.142	3.406
10.00	0.03	-0.01	3.436	3.496	3.485	3.553	3.431	3.472	2.923	3.454	4.143	3.406
9.00	0.03	-0.01	3.435	3.496	3.485	3.553	3.430	3.472	2.922	3.454	4.145	3.405
8.00	0.03	-0.01	3.435	3.496	3.485	3.554	3.430	3.472	2.921	3.454	4.146	3.405
7.00	0.03	-0.01	3.435	3.496	3.485	3.554	3.429	3.472	2.920	3.454	4.148	3.405
6.00	0.03	-0.01	3.435	3.496	3.485	3.554	3.429	3.472	2.919	3.453	4.149	3.405
5.00	0.03	-0.01	3.435	3.496	3.485	3.554	3.429	3.472	2.918	3.453	4.150	3.405
4.00	0.03	-0.01	3.435	3.495	3.485	3.554	3.429	3.472	2.917	3.453	4.152	3.404
3.00	0.03	-0.01	3.435	3.495	3.485	3.554	3.428	3.472	2.916	3.453	4.153	3.404
2.00	0.03	-0.01	3.435	3.495	3.485	3.555	3.428	3.472	2.915	3.453	4.155	3.404
1.00	0.03	-0.01	3.434	3.495	3.485	3.555	3.428	3.472	2.914	3.453	4.156	3.404

GAIN ADJUSTMENT = 0.700 ITERATION NO 3

SCORE	ERROR	ERADJ	COEFFICIENTS								
99.00	-2.34	0.70	3.436	3.510	3.471	3.546	3.471	3.472	2.914	3.454	4.157	3.406
98.00	-0.70	0.21	3.436	3.514	3.467	3.543	3.484	3.472	2.914	3.454	4.157	3.407
97.00	-0.21	0.06	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
96.00	-0.06	0.01	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
95.00	-0.01	0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
94.00	-0.00	0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
93.00	-0.00	0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
92.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
91.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
90.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
89.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
88.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
87.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
86.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
85.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
84.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
83.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
82.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
81.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
80.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
79.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
78.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
77.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
76.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
75.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
74.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
73.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
72.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
71.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
70.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
69.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
68.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
67.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
66.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
65.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.489	3.472	2.914	3.454	4.157	3.407
64.00	0.00	-0.00	3.436	3.516	3.465	3.542	3.488	3.472	2.914	3.454	4.157	3.407
63.00	0.00	-0.00	3.436	3.515	3.465	3.542	3.488	3.472	2.914	3.454	4.157	3.407
62.00	0.00	-0.00	3.436	3.515	3.465	3.542	3.488	3.472	2.914	3.454	4.157	3.407
61.00	0.00	-0.00	3.436	3.515	3.465	3.542	3.488	3.472	2.914	3.454	4.157	3.407
60.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
59.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
58.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
57.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
56.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
55.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
54.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
53.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
52.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
51.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407

50.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
49.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
48.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.488	3.472	2.914	3.454	4.157	3.407
47.00	0.00	-0.00	3.436	3.515	3.465	3.543	3.487	3.472	2.914	3.454	4.157	3.407
46.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.157	3.407
45.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.157	3.407
44.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.157	3.407
43.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.157	3.407
42.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.157	3.407
41.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.157	3.407
40.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.158	3.407
39.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.158	3.407
38.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.914	3.454	4.158	3.407
37.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.913	3.454	4.158	3.407
36.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.487	3.472	2.913	3.454	4.158	3.407
35.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.407
34.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.407
33.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
32.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
31.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
30.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
29.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
28.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
27.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
26.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.158	3.406
25.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.159	3.406
24.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.486	3.472	2.913	3.454	4.159	3.406
23.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.485	3.472	2.913	3.454	4.159	3.406
22.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.485	3.472	2.913	3.454	4.159	3.406
21.00	0.00	-0.00	3.436	3.515	3.466	3.543	3.485	3.472	2.913	3.454	4.159	3.406
20.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.159	3.406
19.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.159	3.406
18.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.159	3.406
17.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.159	3.406
16.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.159	3.406
15.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.160	3.406
14.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.160	3.406
13.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.160	3.406
12.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.160	3.406
11.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.160	3.406
10.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.912	3.454	4.160	3.406
9.00	0.00	-0.00	3.436	3.514	3.466	3.543	3.485	3.472	2.911	3.454	4.160	3.406
8.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.160	3.406
7.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406
6.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406
5.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406
4.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406
3.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406
2.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406
1.00	0.00	-0.00	3.436	3.514	3.466	3.544	3.485	3.472	2.911	3.454	4.161	3.406

GAIN ADJUSTMENT = 0.700 ITERATION NO 4

SCORE	ERROR	ERADJ	COEFFICIENTS								
99.00	-0.19	0.05	3.436	3.515	3.465	3.543	3.488	3.472	2.911	3.454	4.161	3.406
98.00	-0.05	0.01	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.406
97.00	-0.01	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
96.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
95.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
94.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
93.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
92.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
91.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
90.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
89.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
88.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
87.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
86.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
85.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
84.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
83.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
82.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
81.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
80.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
79.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
78.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
77.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
76.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
75.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
74.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
73.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
72.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
71.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
70.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
69.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
68.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
67.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
66.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
65.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
64.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
63.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
62.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
61.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
60.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
59.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
58.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
57.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
56.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
55.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
54.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
53.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
52.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406
51.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.406

50.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.4C6
49.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.4C6
48.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.161	3.4C6
47.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
46.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
45.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
44.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
43.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
42.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
41.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
40.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
39.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
38.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
37.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
36.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
35.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
34.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
33.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
32.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
31.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
30.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
29.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
28.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
27.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
26.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
25.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
24.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
23.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
22.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
21.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
20.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
19.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
18.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
17.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
16.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
15.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
14.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
13.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
12.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
11.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.161	3.4C6
10.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
9.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
8.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
7.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
6.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
5.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
4.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
3.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
2.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6
1.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.489	3.472	2.911	3.454	4.162	3.4C6

GAIN ADJUSTMENT = 0.700 ITERATION NO 5

SCORE	ERROR	ERADJ	COEFFICIENTS									
99.00	-0.01	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
98.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
97.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
96.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
95.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
94.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
93.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
92.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
91.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
90.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
89.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
88.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
87.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
86.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
85.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
84.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
83.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
82.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
81.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
80.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
79.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
78.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
77.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
76.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
75.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
74.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
73.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
72.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
71.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
70.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
69.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
68.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
67.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
66.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
65.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
64.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
63.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
62.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
61.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
60.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
59.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
58.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
57.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
56.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
55.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
54.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
53.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
52.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
51.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406

50.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
49.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
48.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
47.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
46.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
45.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
44.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
43.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
42.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
41.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
40.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
39.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
38.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
37.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
36.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
35.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
34.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
33.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
32.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
31.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
30.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
29.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
28.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
27.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
26.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
25.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
24.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
23.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
22.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
21.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
20.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
19.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
18.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
17.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
16.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
15.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
14.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
13.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
12.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
11.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
10.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
9.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
8.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
7.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
6.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
5.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
4.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
3.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
2.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6
1.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.4C6

GAIN ADJUSTMENT = 0.700 ITERATION NO 6

SCORE	ERROR	ERADJ	COEFFICIENTS									
99.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
98.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
97.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
96.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
95.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
94.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
93.00	-0.00	0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
92.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
91.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
90.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
89.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
88.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
87.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
86.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
85.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
84.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
83.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
82.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
81.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
80.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
79.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
78.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
77.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
76.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
75.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
74.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
73.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
72.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
71.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
70.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
69.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
68.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
67.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
66.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
65.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
64.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
63.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
62.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
61.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
60.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
59.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
58.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
57.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
56.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
55.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
54.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
53.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
52.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
51.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406

50.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
49.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
48.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
47.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
46.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
45.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
44.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
43.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
42.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
41.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
40.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
39.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
38.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
37.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
36.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
35.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
34.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
33.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
32.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
31.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
30.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
29.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
28.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
27.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
26.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
25.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
24.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
23.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
22.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
21.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
20.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
19.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
18.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
17.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
16.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
15.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
14.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
13.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
12.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
11.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
10.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
9.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
8.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
7.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
6.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
5.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
4.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
3.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
2.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406
1.00	0.00	-0.00	3.436	3.516	3.465	3.543	3.490	3.472	2.911	3.454	4.162	3.406

APPENDIX 34

FIRST TWO TRAINING ITERATIONS FOR THE LINEAR PROPORTIONAL ADJUSTMENT SYSTEM. GAIN ADJUSTMENT = 0.9
(DATA GIVEN IN APPENDIX 31)

GAIN ADJUSTMENT = 0.900 ITERATION NO 1 -108-

SCORE	ERROR	ERADJ	COEFFICIENTS									
99.00	0.13	+0.01	3.496	3.496	3.497	3.497	3.494	3.496	3.496	3.496	3.496	3.496
98.00	0.14	-0.01	3.496	3.494	3.499	3.498	3.490	3.496	3.496	3.496	3.496	3.496
97.00	0.14	+0.01	3.496	3.493	3.500	3.498	3.487	3.496	3.496	3.496	3.496	3.496
96.00	0.14	-0.01	3.496	3.492	3.501	3.499	3.483	3.496	3.496	3.496	3.496	3.496
95.00	0.15	-0.01	3.496	3.491	3.502	3.500	3.480	3.496	3.496	3.496	3.496	3.496
94.00	0.15	+0.01	3.496	3.490	3.503	3.501	3.476	3.496	3.496	3.496	3.496	3.495
93.00	0.15	+0.01	3.496	3.489	3.504	3.501	3.472	3.496	3.496	3.496	3.497	3.495
92.00	0.15	+0.01	3.496	3.487	3.506	3.502	3.468	3.496	3.496	3.496	3.497	3.495
91.00	0.15	+0.01	3.495	3.486	3.507	3.503	3.465	3.496	3.496	3.496	3.497	3.495
90.00	0.15	+0.01	3.495	3.485	3.508	3.504	3.461	3.496	3.496	3.496	3.497	3.495
89.00	0.15	+0.01	3.495	3.483	3.510	3.504	3.457	3.496	3.495	3.496	3.497	3.494
88.00	0.16	+0.01	3.495	3.482	3.511	3.505	3.452	3.496	3.495	3.495	3.497	3.494
87.00	0.16	+0.01	3.495	3.481	3.512	3.506	3.448	3.496	3.495	3.495	3.497	3.494
86.00	0.16	+0.01	3.495	3.479	3.514	3.507	3.444	3.496	3.495	3.495	3.497	3.494
85.00	0.16	+0.01	3.494	3.478	3.515	3.508	3.440	3.496	3.495	3.495	3.497	3.493
84.00	0.16	+0.01	3.494	3.476	3.517	3.509	3.435	3.496	3.494	3.495	3.498	3.493
83.00	0.16	+0.01	3.494	3.475	3.518	3.510	3.430	3.496	3.494	3.495	3.498	3.493
82.00	0.17	+0.01	3.494	3.473	3.520	3.511	3.426	3.495	3.494	3.495	3.498	3.493
81.00	0.17	+0.01	3.494	3.472	3.522	3.512	3.421	3.495	3.493	3.495	3.498	3.492
80.00	0.17	+0.01	3.493	3.470	3.523	3.513	3.416	3.495	3.493	3.494	3.499	3.492
79.00	0.17	+0.01	3.493	3.468	3.525	3.514	3.411	3.495	3.492	3.494	3.499	3.492
78.00	0.17	+0.01	3.493	3.467	3.527	3.515	3.406	3.495	3.492	3.494	3.500	3.491
77.00	0.18	+0.01	3.493	3.465	3.528	3.516	3.401	3.495	3.491	3.494	3.500	3.491
76.00	0.18	+0.01	3.493	3.463	3.530	3.517	3.395	3.495	3.491	3.494	3.500	3.491
75.00	0.18	+0.01	3.492	3.461	3.532	3.518	3.390	3.495	3.490	3.494	3.501	3.490
74.00	0.18	-0.01	3.492	3.459	3.534	3.520	3.384	3.495	3.489	3.493	3.502	3.490
73.00	0.19	+0.01	3.492	3.458	3.536	3.521	3.379	3.495	3.489	3.493	3.502	3.490
72.00	0.19	+0.01	3.492	3.456	3.538	3.522	3.373	3.495	3.488	3.493	3.503	3.489
71.00	0.19	+0.01	3.491	3.454	3.540	3.523	3.367	3.494	3.487	3.493	3.504	3.489
70.00	0.19	-0.01	3.491	3.452	3.542	3.525	3.361	3.494	3.486	3.493	3.504	3.488
69.00	0.19	+0.01	3.491	3.449	3.544	3.526	3.354	3.494	3.485	3.492	3.505	3.488
68.00	0.20	+0.02	3.490	3.447	3.546	3.528	3.348	3.494	3.484	3.492	3.506	3.487
67.00	0.20	+0.02	3.490	3.445	3.549	3.529	3.341	3.494	3.483	3.492	3.507	3.487
66.00	0.20	+0.02	3.490	3.443	3.551	3.531	3.335	3.494	3.482	3.492	3.508	3.486
65.00	0.20	+0.02	3.489	3.441	3.553	3.532	3.328	3.494	3.480	3.491	3.509	3.486
64.00	0.21	+0.02	3.489	3.438	3.556	3.534	3.321	3.493	3.479	3.491	3.510	3.485
63.00	0.21	+0.02	3.489	3.436	3.558	3.535	3.314	3.493	3.477	3.491	3.512	3.485
62.00	0.21	+0.02	3.488	3.433	3.561	3.537	3.306	3.493	3.476	3.491	3.513	3.484
61.00	0.22	+0.02	3.488	3.431	3.564	3.539	3.299	3.493	3.474	3.490	3.515	3.483
60.00	0.22	+0.02	3.487	3.428	3.566	3.541	3.291	3.493	3.472	3.490	3.516	3.483
59.00	0.22	+0.02	3.487	3.425	3.569	3.542	3.283	3.493	3.470	3.490	3.518	3.482
58.00	0.22	+0.02	3.486	3.423	3.572	3.544	3.275	3.492	3.468	3.489	3.520	3.481
57.00	0.23	+0.02	3.486	3.420	3.575	3.546	3.267	3.492	3.466	3.489	3.522	3.481
56.00	0.23	+0.02	3.485	3.417	3.578	3.548	3.258	3.492	3.464	3.489	3.524	3.480
55.00	0.23	+0.02	3.485	3.414	3.581	3.550	3.250	3.492	3.461	3.488	3.526	3.479
54.00	0.24	+0.02	3.484	3.411	3.584	3.552	3.241	3.492	3.459	3.488	3.528	3.478
53.00	0.24	+0.02	3.484	3.408	3.587	3.555	3.232	3.491	3.456	3.487	3.531	3.477
52.00	0.24	+0.02	3.483	3.405	3.590	3.557	3.223	3.491	3.453	3.487	3.534	3.476
51.00	0.25	+0.02	3.482	3.402	3.594	3.559	3.213	3.491	3.450	3.487	3.537	3.475

50.00	0.25	-0.02	3.482	3.399	3.597	3.562	3.204	3.491	3.446	3.486	3.540	3.474
49.00	0.25	-0.02	3.481	3.395	3.601	3.564	3.194	3.490	3.443	3.486	3.543	3.473
48.00	0.26	-0.02	3.480	3.392	3.604	3.567	3.184	3.490	3.439	3.485	3.547	3.472
47.00	0.26	-0.02	3.480	3.388	3.608	3.569	3.174	3.490	3.435	3.485	3.550	3.471
46.00	0.26	-0.02	3.479	3.385	3.612	3.572	3.164	3.489	3.431	3.484	3.554	3.470
45.00	0.27	-0.02	3.478	3.381	3.616	3.575	3.153	3.489	3.426	3.483	3.559	3.469
44.00	0.27	-0.02	3.477	3.378	3.620	3.577	3.143	3.489	3.421	3.483	3.563	3.467
43.00	0.27	-0.02	3.476	3.374	3.624	3.580	3.132	3.488	3.416	3.482	3.568	3.466
42.00	0.28	-0.02	3.475	3.370	3.628	3.583	3.121	3.488	3.411	3.482	3.573	3.465
41.00	0.28	-0.02	3.474	3.366	3.632	3.586	3.110	3.488	3.405	3.481	3.579	3.463
40.00	0.28	-0.02	3.473	3.362	3.636	3.589	3.099	3.487	3.399	3.480	3.585	3.462
39.00	0.29	-0.02	3.472	3.358	3.640	3.593	3.087	3.487	3.393	3.479	3.591	3.460
38.00	0.29	-0.02	3.471	3.354	3.645	3.596	3.076	3.486	3.386	3.479	3.597	3.459
37.00	0.29	-0.02	3.470	3.350	3.649	3.599	3.064	3.486	3.379	3.478	3.604	3.457
36.00	0.30	-0.03	3.469	3.346	3.653	3.603	3.053	3.485	3.372	3.477	3.611	3.455
35.00	0.30	-0.03	3.468	3.342	3.658	3.606	3.041	3.485	3.364	3.476	3.619	3.453
34.00	0.30	-0.03	3.466	3.338	3.662	3.609	3.029	3.484	3.356	3.475	3.627	3.451
33.00	0.31	-0.03	3.465	3.334	3.667	3.613	3.017	3.484	3.347	3.474	3.636	3.450
32.00	0.31	-0.03	3.464	3.330	3.671	3.617	3.006	3.483	3.339	3.474	3.645	3.448
31.00	0.31	-0.03	3.462	3.326	3.676	3.620	2.994	3.483	3.329	3.473	3.654	3.445
30.00	0.32	-0.03	3.461	3.322	3.680	3.624	2.982	3.482	3.320	3.472	3.664	3.443
29.00	0.32	-0.03	3.460	3.318	3.685	3.628	2.971	3.482	3.309	3.471	3.674	3.441
28.00	0.32	-0.03	3.458	3.314	3.689	3.632	2.959	3.481	3.299	3.470	3.685	3.439
27.00	0.33	-0.03	3.456	3.310	3.694	3.635	2.948	3.480	3.288	3.468	3.696	3.437
26.00	0.33	-0.03	3.455	3.306	3.698	3.639	2.937	3.480	3.277	3.467	3.708	3.434
25.00	0.33	-0.03	3.453	3.302	3.702	3.643	2.926	3.479	3.265	3.466	3.720	3.432
24.00	0.33	-0.03	3.452	3.298	3.707	3.647	2.915	3.479	3.254	3.465	3.733	3.429
23.00	0.33	-0.03	3.450	3.295	3.711	3.651	2.905	3.478	3.241	3.464	3.746	3.427
22.00	0.34	-0.03	3.448	3.291	3.715	3.654	2.895	3.477	3.229	3.463	3.760	3.424
21.00	0.34	-0.03	3.447	3.288	3.719	3.658	2.885	3.476	3.216	3.462	3.774	3.422
20.00	0.34	-0.03	3.445	3.284	3.722	3.662	2.876	3.476	3.203	3.460	3.788	3.419
19.00	0.34	-0.03	3.443	3.281	3.726	3.665	2.867	3.475	3.190	3.459	3.803	3.417
18.00	0.34	-0.03	3.441	3.278	3.729	3.669	2.858	3.474	3.176	3.458	3.818	3.414
17.00	0.34	-0.03	3.440	3.275	3.733	3.672	2.850	3.474	3.162	3.457	3.833	3.412
16.00	0.34	-0.03	3.438	3.273	3.736	3.676	2.842	3.473	3.149	3.455	3.849	3.409
15.00	0.34	-0.03	3.436	3.270	3.738	3.679	2.835	3.472	3.135	3.454	3.865	3.406
14.00	0.34	-0.03	3.434	3.268	3.741	3.682	2.828	3.471	3.121	3.453	3.882	3.404
13.00	0.34	-0.03	3.433	3.265	3.744	3.685	2.821	3.471	3.107	3.452	3.898	3.401
12.00	0.34	-0.03	3.431	3.263	3.746	3.688	2.816	3.470	3.092	3.450	3.915	3.398
11.00	0.34	-0.03	3.429	3.262	3.748	3.691	2.810	3.469	3.078	3.449	3.932	3.396
10.00	0.34	-0.03	3.427	3.260	3.750	3.694	2.805	3.469	3.064	3.448	3.948	3.393
9.00	0.34	-0.03	3.426	3.259	3.752	3.697	2.801	3.468	3.050	3.447	3.965	3.391
8.00	0.34	-0.03	3.424	3.257	3.753	3.699	2.797	3.467	3.037	3.446	3.983	3.388
7.00	0.33	-0.03	3.422	3.256	3.754	3.702	2.793	3.467	3.023	3.444	4.000	3.386
6.00	0.33	-0.03	3.421	3.255	3.755	3.704	2.790	3.466	3.009	3.443	4.017	3.383
5.00	0.33	-0.03	3.419	3.255	3.756	3.706	2.788	3.465	2.996	3.442	4.034	3.381
4.00	0.33	-0.03	3.418	3.254	3.757	3.708	2.786	3.465	2.983	3.441	4.050	3.379
3.00	0.33	-0.03	3.416	3.253	3.757	3.710	2.784	3.464	2.970	3.440	4.067	3.377
2.00	0.32	-0.03	3.415	3.253	3.758	3.712	2.782	3.464	2.957	3.439	4.084	3.374
1.00	0.32	-0.03	3.413	3.253	3.758	3.713	2.782	3.463	2.944	3.438	4.100	3.372

GAIN ADJUSTMENT = 0.900 ITERATION NO 2

SCORE	ERROR	ERADJ	COEFFICIENTS									
99.00	-28.01	2.80	3.439	3.494	3.480	3.548	3.410	3.473	2.949	3.456	4.109	3.410
98.00	-2.76	0.28	3.441	3.516	3.458	3.535	3.476	3.474	2.949	3.458	4.110	3.413
97.00	-0.26	0.02	3.441	3.518	3.455	3.533	3.482	3.474	2.949	3.458	4.110	3.414
96.00	-0.01	0.00	3.441	3.518	3.455	3.533	3.483	3.474	2.949	3.458	4.110	3.414
95.00	0.00	-0.00	3.441	3.518	3.455	3.533	3.482	3.474	2.949	3.458	4.110	3.414
94.00	0.01	-0.00	3.441	3.518	3.455	3.533	3.482	3.474	2.949	3.458	4.110	3.414
93.00	0.01	-0.00	3.441	3.518	3.456	3.533	3.482	3.474	2.949	3.458	4.110	3.414
92.00	0.01	-0.00	3.441	3.518	3.456	3.533	3.482	3.474	2.949	3.458	4.110	3.414
91.00	0.01	-0.00	3.441	3.518	3.456	3.533	3.481	3.474	2.949	3.458	4.110	3.414
90.00	0.01	-0.00	3.441	3.518	3.456	3.533	3.481	3.474	2.949	3.458	4.110	3.414
89.00	0.01	-0.00	3.441	3.518	3.456	3.534	3.481	3.474	2.949	3.458	4.110	3.414
88.00	0.01	-0.00	3.441	3.518	3.456	3.534	3.480	3.474	2.949	3.458	4.110	3.414
87.00	0.01	-0.00	3.441	3.518	3.456	3.534	3.480	3.474	2.949	3.458	4.110	3.414
86.00	0.01	-0.00	3.441	3.517	3.456	3.534	3.480	3.474	2.949	3.458	4.110	3.414
85.00	0.01	-0.00	3.441	3.517	3.456	3.534	3.479	3.474	2.949	3.458	4.110	3.413
84.00	0.01	-0.00	3.441	3.517	3.456	3.534	3.479	3.474	2.949	3.458	4.110	3.413
83.00	0.01	-0.00	3.441	3.517	3.457	3.534	3.479	3.474	2.949	3.458	4.110	3.413
82.00	0.01	-0.00	3.441	3.517	3.457	3.534	3.478	3.474	2.949	3.458	4.110	3.413
81.00	0.01	-0.00	3.441	3.517	3.457	3.534	3.478	3.474	2.949	3.458	4.110	3.413
80.00	0.01	-0.00	3.441	3.517	3.457	3.534	3.478	3.474	2.949	3.458	4.110	3.413
79.00	0.01	-0.00	3.441	3.517	3.457	3.534	3.477	3.474	2.949	3.458	4.110	3.413
78.00	0.01	-0.00	3.441	3.517	3.457	3.534	3.477	3.474	2.949	3.458	4.110	3.413
77.00	0.01	-0.00	3.441	3.516	3.457	3.534	3.477	3.474	2.949	3.457	4.110	3.413
76.00	0.01	-0.00	3.441	3.516	3.457	3.534	3.476	3.474	2.949	3.457	4.110	3.413
75.00	0.01	-0.00	3.441	3.516	3.458	3.535	3.476	3.474	2.949	3.457	4.110	3.413
74.00	0.01	-0.00	3.441	3.516	3.458	3.535	3.475	3.474	2.949	3.457	4.110	3.413
73.00	0.01	-0.00	3.441	3.516	3.458	3.535	3.475	3.474	2.949	3.457	4.110	3.413
72.00	0.01	-0.00	3.441	3.516	3.458	3.535	3.475	3.474	2.949	3.457	4.110	3.413
71.00	0.01	-0.00	3.441	3.516	3.458	3.535	3.474	3.474	2.949	3.457	4.110	3.413
70.00	0.01	-0.00	3.441	3.515	3.458	3.535	3.474	3.474	2.949	3.457	4.110	3.413
69.00	0.01	-0.00	3.441	3.515	3.458	3.535	3.473	3.474	2.949	3.457	4.111	3.413
68.00	0.01	-0.00	3.441	3.515	3.459	3.535	3.473	3.474	2.949	3.457	4.111	3.413
67.00	0.01	-0.00	3.441	3.515	3.459	3.535	3.472	3.474	2.949	3.457	4.111	3.413
66.00	0.01	-0.00	3.441	3.515	3.459	3.535	3.472	3.474	2.949	3.457	4.111	3.413
65.00	0.01	-0.00	3.441	3.515	3.459	3.536	3.471	3.474	2.948	3.457	4.111	3.413
64.00	0.01	-0.00	3.441	3.514	3.459	3.536	3.471	3.474	2.948	3.457	4.111	3.413
63.00	0.01	-0.00	3.441	3.514	3.459	3.536	3.470	3.474	2.948	3.457	4.111	3.413
62.00	0.01	-0.00	3.441	3.514	3.460	3.536	3.470	3.474	2.948	3.457	4.111	3.413
61.00	0.01	-0.00	3.441	3.514	3.460	3.536	3.469	3.474	2.948	3.457	4.111	3.413
60.00	0.01	-0.00	3.441	3.514	3.460	3.536	3.469	3.474	2.948	3.457	4.111	3.413
59.00	0.01	-0.00	3.440	3.514	3.460	3.536	3.468	3.474	2.948	3.457	4.112	3.413
58.00	0.01	-0.00	3.440	3.513	3.460	3.536	3.467	3.474	2.948	3.457	4.112	3.413
57.00	0.01	-0.00	3.440	3.513	3.460	3.537	3.467	3.474	2.948	3.457	4.112	3.413
56.00	0.01	-0.00	3.440	3.513	3.461	3.537	3.466	3.474	2.948	3.457	4.112	3.413
55.00	0.01	-0.00	3.440	3.513	3.461	3.537	3.465	3.474	2.947	3.457	4.112	3.412
54.00	0.01	-0.00	3.440	3.513	3.461	3.537	3.465	3.474	2.947	3.457	4.112	3.412
53.00	0.01	-0.00	3.440	3.512	3.461	3.537	3.464	3.474	2.947	3.457	4.113	3.412
52.00	0.01	-0.00	3.440	3.512	3.462	3.537	3.463	3.474	2.947	3.457	4.113	3.412
51.00	0.01	-0.00	3.440	3.512	3.462	3.537	3.463	3.474	2.947	3.457	4.113	3.412

50.00	0.01	-0.00	3.440	3.512	3.462	3.538	3.462	3.474	2.946	3.457	4.113	3.412
49.00	0.01	-0.00	3.440	3.511	3.462	3.538	3.461	3.474	2.946	3.457	4.114	3.412
48.00	0.01	-0.00	3.440	3.511	3.462	3.538	3.461	3.474	2.946	3.457	4.114	3.412
47.00	0.01	-0.00	3.440	3.511	3.463	3.538	3.460	3.474	2.946	3.457	4.114	3.412
46.00	0.01	-0.00	3.440	3.511	3.463	3.538	3.459	3.474	2.946	3.457	4.115	3.412
45.00	0.01	-0.00	3.440	3.510	3.463	3.538	3.458	3.474	2.945	3.457	4.115	3.412
44.00	0.02	-0.00	3.440	3.510	3.463	3.539	3.457	3.474	2.945	3.457	4.115	3.412
43.00	0.02	-0.00	3.440	3.510	3.464	3.539	3.457	3.474	2.945	3.457	4.116	3.412
42.00	0.02	-0.00	3.440	3.510	3.464	3.539	3.456	3.474	2.944	3.457	4.116	3.412
41.00	0.02	-0.00	3.440	3.509	3.464	3.539	3.455	3.474	2.944	3.457	4.117	3.411
40.00	0.02	-0.00	3.440	3.509	3.465	3.539	3.454	3.474	2.944	3.457	4.117	3.411
39.00	0.02	-0.00	3.439	3.509	3.465	3.540	3.453	3.474	2.943	3.457	4.117	3.411
38.00	0.02	-0.00	3.439	3.508	3.465	3.540	3.452	3.474	2.943	3.456	4.118	3.411
37.00	0.02	-0.00	3.439	3.508	3.465	3.540	3.451	3.474	2.942	3.456	4.119	3.411
36.00	0.02	-0.00	3.439	3.508	3.466	3.540	3.450	3.474	2.942	3.456	4.119	3.411
35.00	0.02	-0.00	3.439	3.508	3.466	3.541	3.450	3.473	2.942	3.456	4.120	3.411
34.00	0.02	-0.00	3.439	3.507	3.466	3.541	3.449	3.473	2.941	3.456	4.120	3.411
33.00	0.02	-0.00	3.439	3.507	3.467	3.541	3.448	3.473	2.941	3.456	4.121	3.410
32.00	0.02	-0.00	3.439	3.507	3.467	3.541	3.447	3.473	2.940	3.456	4.122	3.410
31.00	0.02	-0.00	3.439	3.506	3.467	3.542	3.446	3.473	2.939	3.456	4.122	3.410
30.00	0.02	-0.00	3.439	3.506	3.467	3.542	3.445	3.473	2.939	3.456	4.123	3.410
29.00	0.02	-0.00	3.439	3.506	3.468	3.542	3.444	3.473	2.938	3.456	4.124	3.410
28.00	0.02	-0.00	3.438	3.505	3.468	3.542	3.443	3.473	2.938	3.456	4.125	3.410
27.00	0.02	-0.00	3.438	3.505	3.468	3.543	3.442	3.473	2.937	3.456	4.126	3.410
26.00	0.02	-0.00	3.438	3.505	3.469	3.543	3.441	3.473	2.936	3.456	4.127	3.409
25.00	0.02	-0.00	3.438	3.505	3.469	3.543	3.440	3.473	2.935	3.456	4.128	3.409
24.00	0.02	-0.00	3.438	3.504	3.469	3.543	3.439	3.473	2.935	3.455	4.129	3.409
23.00	0.02	-0.00	3.438	3.504	3.469	3.544	3.439	3.473	2.934	3.455	4.130	3.409
22.00	0.02	-0.00	3.438	3.504	3.470	3.544	3.438	3.473	2.933	3.455	4.131	3.409
21.00	0.02	-0.00	3.438	3.504	3.470	3.544	3.437	3.473	2.932	3.455	4.132	3.409
20.00	0.02	-0.00	3.438	3.503	3.470	3.544	3.436	3.473	2.931	3.455	4.133	3.408
19.00	0.02	-0.00	3.437	3.503	3.471	3.545	3.435	3.473	2.931	3.455	4.134	3.408
18.00	0.02	-0.00	3.437	3.503	3.471	3.545	3.435	3.473	2.930	3.455	4.135	3.408
17.00	0.02	-0.00	3.437	3.503	3.471	3.545	3.434	3.473	2.929	3.455	4.137	3.408
16.00	0.02	-0.00	3.437	3.502	3.471	3.545	3.433	3.473	2.928	3.455	4.138	3.408
15.00	0.02	-0.00	3.437	3.502	3.471	3.546	3.432	3.473	2.927	3.455	4.139	3.407
14.00	0.02	-0.00	3.437	3.502	3.472	3.546	3.432	3.473	2.926	3.455	4.140	3.407
13.00	0.02	-0.00	3.437	3.502	3.472	3.546	3.431	3.472	2.925	3.455	4.142	3.407
12.00	0.02	-0.00	3.437	3.502	3.472	3.546	3.431	3.472	2.924	3.454	4.143	3.407
11.00	0.02	-0.00	3.436	3.501	3.472	3.547	3.430	3.472	2.923	3.454	4.144	3.407
10.00	0.02	-0.00	3.436	3.501	3.472	3.547	3.430	3.472	2.922	3.454	4.146	3.406
9.00	0.02	-0.00	3.436	3.501	3.472	3.547	3.429	3.472	2.921	3.454	4.147	3.406
8.00	0.02	-0.00	3.436	3.501	3.472	3.547	3.429	3.472	2.920	3.454	4.148	3.406
7.00	0.02	-0.00	3.436	3.501	3.472	3.547	3.429	3.472	2.919	3.454	4.150	3.406
6.00	0.02	-0.00	3.436	3.501	3.473	3.547	3.428	3.472	2.918	3.454	4.151	3.406
5.00	0.02	-0.00	3.436	3.501	3.473	3.548	3.428	3.472	2.917	3.454	4.152	3.406
4.00	0.02	-0.00	3.436	3.501	3.473	3.548	3.428	3.472	2.916	3.454	4.154	3.405
3.00	0.02	-0.00	3.435	3.501	3.473	3.548	3.428	3.472	2.915	3.454	4.155	3.405
2.00	0.02	-0.00	3.435	3.501	3.473	3.548	3.428	3.472	2.914	3.454	4.156	3.405
1.00	0.02	-0.00	3.435	3.501	3.473	3.548	3.428	3.472	2.913	3.453	4.158	3.405

APPENDIX 35

TARGET SCORES AND FUNCTIONALLY GENERATED QUADRATIC DATA VALUES USED FOR EVALUATION OF THE QUADRATIC PROPORTIONAL ADJUSTMENT SYSTEM

INPUT DATA						
P1	P2	P3	P4	P5	P6	SCORE
0.144	-0.995	0.145	0.253	0.173	-0.167	2.187
-0.740	0.319	0.494	-0.144	0.217	0.884	7.511
-0.592	-0.198	-0.251	0.071	0.889	-0.744	2.090
-0.617	0.494	-0.168	0.916	0.696	-0.504	5.850
-0.694	0.837	0.558	-0.595	-0.202	0.685	5.036
0.390	-0.214	0.471	-0.017	-0.594	-0.313	0.565
0.408	0.365	-0.131	-0.111	-0.137	-0.175	1.609
0.340	-0.840	-0.488	0.966	0.924	0.500	9.571
-0.294	-0.752	0.525	-0.605	-0.287	-0.757	-0.065
0.092	0.063	0.977	0.883	-0.126	-0.289	7.167
0.362	-0.294	0.664	0.775	-0.596	-0.887	1.498
-0.947	-0.820	-0.439	0.612	0.678	0.581	6.065
-0.538	0.072	-0.526	0.620	0.160	-0.030	2.964
0.923	-0.825	0.379	-0.358	-0.697	0.604	2.897
-0.237	-0.465	0.938	0.002	0.130	-0.544	2.181
-0.548	-0.549	0.719	0.818	-0.987	0.261	3.517
-0.558	0.896	-0.413	-0.769	0.131	-0.926	-0.090
0.186	0.893	-0.208	-0.904	0.120	-0.236	1.278
-0.149	-0.687	0.246	0.595	-0.593	0.938	5.439
0.217	0.622	0.480	0.292	-0.267	-0.187	4.485
-0.738	-0.944	-0.208	-0.876	-0.631	0.519	2.762
-0.064	0.742	-0.915	-0.169	-0.493	0.340	1.555
0.620	0.251	0.893	-0.674	-0.647	-0.603	0.301
0.778	-0.908	-0.915	-0.503	-0.606	-0.738	-0.174
-0.709	-0.363	-0.231	-0.051	0.365	0.013	2.187
0.978	-0.005	0.876	0.183	-0.607	-0.770	2.236
0.812	-0.690	-0.066	0.719	0.834	0.419	10.727
-0.686	-0.992	-0.473	0.643	-0.700	0.381	2.751
0.644	-0.524	-0.052	-0.897	0.362	-0.980	-0.492
0.866	-0.325	0.530	0.238	0.457	-0.917	3.677
-0.081	-0.800	-0.829	-0.953	-0.531	-0.662	1.684
0.756	0.271	-0.453	-0.309	-0.495	0.693	3.363
-0.811	-0.842	-0.492	-0.265	-0.649	0.749	2.953
-0.094	0.556	0.165	-0.168	0.129	0.297	4.708
0.181	0.384	-0.838	0.334	-0.376	-0.758	-0.435
0.782	0.527	-0.361	0.352	0.814	-0.529	6.618
-0.457	-0.980	0.380	0.745	0.076	0.162	4.443
-0.850	-0.836	0.649	0.550	0.589	-0.979	3.020
0.594	-0.929	-0.790	0.353	0.417	0.965	6.853
-0.178	-0.825	-0.956	0.086	0.782	-0.261	2.392
-0.926	-0.853	-0.757	0.779	0.028	-0.031	3.133
0.406	-0.234	-0.402	-0.270	0.767	-0.848	0.957
0.898	-0.778	-0.630	0.628	-0.286	-0.905	0.142
-0.943	-0.635	-0.245	0.107	-0.286	0.271	2.231
-0.101	-0.624	-0.473	0.237	-0.550	0.630	2.242
0.227	0.390	-0.620	0.456	0.342	0.340	6.083

-0.415	0.549	0.447	0.431	0.133	-0.033	5.721
0.415	-0.006	0.512	-0.627	0.664	-0.411	3.285
0.885	-0.708	-0.589	-0.733	-0.667	0.358	0.492
-0.082	0.810	-0.888	-0.436	-0.257	-0.017	0.668
-0.102	0.513	-0.004	0.787	-0.959	-0.334	1.548
0.577	-0.291	0.810	0.595	-0.563	-0.031	4.924
-0.351	0.231	-0.175	-0.232	-0.580	-0.887	-1.098
-0.467	0.547	0.661	-0.359	0.152	-0.771	1.412
-0.170	0.324	0.320	0.470	0.555	0.029	7.446
0.972	0.912	0.890	0.235	0.588	-0.569	12.710
0.558	-0.721	0.448	-0.613	0.203	0.606	4.595
-0.123	0.876	0.645	-0.978	-0.504	0.976	6.021
0.121	0.943	0.475	0.001	-0.457	0.642	7.728
-0.221	-0.252	-0.256	0.504	-0.578	-0.249	0.510
0.729	-0.728	-0.289	-0.476	0.925	0.298	4.950
0.505	0.820	0.430	-0.206	0.457	-0.126	7.467
0.264	-0.918	0.266	-0.345	-0.379	0.841	3.377
-0.070	0.118	-0.886	-0.637	-0.008	0.451	1.536
0.030	0.796	0.794	-0.673	-0.424	-0.600	0.889
-0.278	-0.847	0.133	-0.208	0.463	0.320	3.382
0.502	-0.800	0.247	-0.544	-0.843	-0.288	-0.591
-0.898	-0.331	-0.507	0.522	-0.896	0.805	3.327
-0.922	0.187	-0.376	-0.306	0.901	0.873	7.009
0.583	0.397	0.623	0.602	-0.305	0.464	10.208
-0.173	-0.490	-0.277	-0.824	-0.732	0.089	0.276
-0.274	-0.200	0.123	-0.557	0.312	-0.163	1.216
-0.760	-0.469	0.884	-0.727	0.390	-0.573	1.733
0.891	0.827	-0.485	-0.439	-0.339	0.203	1.415
-0.019	-0.027	0.748	0.339	-0.179	0.561	7.231
0.982	-0.341	0.995	-0.665	-0.078	0.320	5.736
0.633	0.664	0.001	0.464	0.286	-0.475	5.905
-0.798	0.465	-0.822	-0.246	0.302	-0.815	0.698
-0.545	0.297	0.128	0.219	-0.567	-0.538	0.156
0.800	0.145	0.853	-0.838	0.987	0.778	13.857
0.125	-0.828	-0.843	-0.586	-0.419	-0.624	0.494
0.821	-0.914	0.729	0.016	-0.212	0.811	7.301
-0.507	-0.053	-0.584	-0.161	-0.528	0.878	2.627
-0.142	-0.093	-0.812	-0.368	-0.687	-0.517	-0.484
-0.668	0.390	-0.720	0.021	0.018	0.941	4.881
-0.199	0.212	0.033	0.935	0.718	0.226	10.088
0.085	0.130	0.918	-0.027	0.054	0.646	8.750
-0.413	-0.659	0.242	-0.792	-0.546	0.459	1.431
0.621	-0.595	0.049	-0.064	0.088	-0.067	2.077
0.948	-0.883	-0.290	0.846	-0.978	0.331	3.156
-0.023	-0.190	-0.311	-0.858	0.048	0.351	1.277
0.166	0.598	-0.992	0.100	0.715	-0.520	2.738
-0.889	-0.948	-0.103	0.555	-0.966	-0.190	2.023
-0.183	0.825	-0.874	-0.166	-0.621	-0.226	-0.016
0.657	-0.303	-0.468	-0.377	-0.930	-0.671	-1.527
0.525	-0.425	-0.772	0.269	-0.849	0.068	0.336
0.668	-0.081	0.000	-0.972	0.848	-0.215	3.021
0.712	0.109	0.398	-0.263	-0.781	0.953	5.771
0.370	0.251	-0.996	-0.563	-0.514	0.666	1.553
0.344	-0.079	-0.606	-0.574	-0.434	-0.500	-1.135

APPENDIX 36

PROGRAM FOR QUADRATIC REGRESSION ANALYSIS WITH PROPORTIONAL COEFFICIENT ADJUSTMENT

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*JOB.
*ASSIGN S=MTO,SI=CR,LO=LP,B0=MT1.
*FORTRAN SI,LO.
*     1   *       ARS =60= JOB 8054 =PART 12
*     2   C       MULTIPLE REGRESSION MODEL WITH PROPORTIONAL COEFFICIENT
*     3   C       ADJUSTMENT.(CLOSED LOOP)
*     4   C       WITHOUT CASE.
*     5   C       ANALOG ADJUSTMENT
*     6           DIMENSION G(9,100), S(100), C1(0/60),SE1(100)
*     7   C       C1 WILL HOLD COEFFICIENTS OF ADJUSTED PROCESS
*     8           READ 1, C
*     9         1 FORMAT (F8.5)
*    10           READ 2, NA
*    11         2 FORMAT (I2)
*    12           NB = (NA**2 + 3*NA + 2)/2
*    13           READ 4000, NP
*    14      4000 FORMAT (I3)
*    15           NP=NP
*    16           READ 4001, IR
*    17      4001 FORMAT (I7)
*    18   C       GENERATE INPUT DATA
*    19           PRINT 523
*    20           IB1=5**9
*    21           SM=1.0/(2**23-1)
*    22           DO 905 I=1,NP
*    23           IR=IR*IB1
*    24           G(1,I)=IR*SM
*    25           IR=IR*IB1
*    26           G(2,I)=IR*SM
*    27           IR=IR*IB1
*    28           G(3,I)=IR*SM
*    29           IR=IR*IB1
*    30           G(4,I)=IR*SM
*    31           IR=IR*IB1
*    32           G(5,I)=IR*SM
*    33           IR=IR*IB1
*    34           G(6,I)=IR*SM
*    35           S(I)=2. + G(1,I) + 1.5*G(2,I)+2.*G(3,I)+2.5*G(4,I)+3.*G(5,I)
*    36          1    +3.5*G(6,I)
*    37           DO 3 J=1,NA
*    38           DO 3 K=J,NA
*    39         3 S(I)=S(I) + G(J,I)*G(K,I)
*    40       905 CONTINUE
*    41           PRINT 523
*    42           PRINT 4
*    43         4 FORMAT ( $           INPUT DATA$,/,$      P1          P2          P3
*    44          1       P4          P5          P6        SCORE$,/)
*    45           DO 9 J=1,NP
*    46           PRINT 6,  ((G(I,J), I=1,NA),S(J))
*    47         6 FORMAT ( 7(4X,F7.3))
*    48         9 CONTINUE
*    49       700 DO 401, IAF=3,13
*    50           AF = IAF
```

```
*     51          AF=0.1*AF
*     52    C     AF = GAIN ADJUSTMENT FACTOR.
*     53    C     INITIALIZE THE CONSTANTS C1[I]
*     54          SUM = 0.0
*     55          DO 200 I=1,NA
*     56      200 SUM = SUM + G[I,1]
*     57          DO 201 I=1,NA
*     58          DO 201 J=1,NA
*     59      201 SUM = SUM + G[I,1]*G[J,1]
*     60    C     THE SUM OF THE G[I,1] PLUS THE SUM OF THE G[I,1]*G[J,1] HAS
*     61    C     BEEN FOUND
*     62          Y = S[1]/SUM
*     63          DO 202 I=0,NB-1
*     64      202 C1[I] = Y
*     65          DO 400 NA=1,20
*     66          PRINT 525
*     67      525 FORMAT [1H1]
*     68          PRINT 403, [[AF]
*     69      403 FORMAT [10X,'GAIN ADJUSTMENT FACTOR = ',14,/]
*     70          PRINT 443, NA
*     71      443 FORMAT [10X,'ITERATION NUMBER ',16,/]
*     72          PRINT 405
*     73      405 FORMAT [4X,'TRUE',5X,'ERROR',4X,'ERROR',3X,'GAIN',//,
*     74         1 4X,'SCORE',4X,'UNADJ',4X,'ADJ',//]
*     75          ISCOC = 1
*     76          DO 205 LAB=2,NP
*     77          IR=IR+1
*     78          R=IR*S
*     79          R=R*[A.P/2.0-1.] +ANP/2.0
*     80          I=R
*     81          ISCOC = ISCOC + 1
*     82          SP = C1[0]
*     83          DO 206 J=1,NA
*     84      206 SP = SP + S[J,I]*C1[J]
*     85          IB = 0
*     86          ICT = 1
*     87          DO 208 J=1,NA
*     88          DO 209 K=J,NA
*     89          LA = J*NA + K - IB
*     90      209 SP = SP + S[J,I]*G[K,I]*C1[LA]
*     91          IB = IB + ICT
*     92      208 ICT = ICT + 1
*     93          SE = SP - S[I]
*     94    C     FIND GAIN ADJUSTMENT CONSTANTS
*     95          AL = C1[0]
*     96          DO 207 J=1,NA
*     97      207 AL = AL + C1[J]*G[J,I]*G[J,I]
*     98          IB = 0
*     99          ICT = 1
*    100          DO 210 J=1,NA
*    101          DO 211 K=J,NA
*    102          LA = J*NA + K -IB
*    103      211 AL = AL + C1[LA]*G[J,I]*G[J,I]*G[K,I]*G[K,I]
*    104          IB = IB + ICT
```

```
      210 ICT = ICT + 1
          AK = (1.0/AL)*AK
          DO  306 J=1,NA
          IF (C1(J) - C) 309,309,310
      310 C1(J) = C1(J) - SE*C1(J)*G(J,I)*AK
          GO TO 306
      309 C1(J) = C1(J) - SE*C*G(J,I)*AK
      306 CONTINUE
          IF (C1(C) - C) 215,215,216
      216 C1(C) = C1(C) - SE*C1(C)*AK
          GO TO 217
      215 C1(C) = C1(C) - SE*C*AK
      217 IB=C
          ICT = 1
          DO 220 J=1,NA
          DO 221 K=J,NA
          LA = J*NA - IB + K
          IF (C1(LA) - C) 409,409,410
      410 C1(LA) = C1(LA) - SE*C1(LA)*G(J,I)*G(K,I)*AK
          GO TO 221
      409 C1(LA) = C1(LA) - SE*C*G(J,I)*G(K,I)*AK
      221 CONTINUE
          IB = IB + ICT
      220 ICT = ICT + 1
          SP = C1(C)
          DO 218 J=1,NA
      218 SP = SP + C1(J)*G(J,I)
C     REPEAT PREDICTION PROCESS USEING ADJUSTED COEFFICIENTS
          IB = C
          ICT = 1
          DO 405 J=1,NA
          DO 407 K=J,NA
          LA = J*NA + K - IB
      407 SP = SP + G(J,I)*G(K,I)*C1(LA)
          IB = IB + ICT
      405 ICT = ICT + 1
          SA = S(I) - SP
C     SA = PREDICTED SCORE ERROR AFTER ADJUSTMENT
          IF (SENSE SWITCH 2) 600,601
      601 IF (ISCOC - 25) 605,606,606
      605 PRINT 610, (G(I),SE,SA,AK)
      610 FORMAT (3(2X,F7.2),2X,F6.5)
          GO TO 608
      606 PRINT 523
          PRINT 520, (G(I),SE,SA,AK, (C1(J),J=C, 6))
          DO 607 K=1,4
      607 PRINT 521, (C1(J), J=(K* 7),((K+1)*7  - 1))
          PRINT 523
          ISCOC = C
          GO TO 608
      523 FORMAT (5 X,/)
      600 PRINT 520, (G(I),SE,SA,AK,(C1(J), J=C, 6))
      520 FORMAT (3(2X,F7.2),2X,F8.5, 7(1X,F7.2))
          DO 522 K=1,4
```

```
*   159          PRINT 821 , (C1(J), J=1,7 , (I(I+1)*7 - 1) )
*   160      821 FORMAT ( 37X, 7(1X,F7.2))
*   161      822 CONTINUE
*   162      800 CONTINUE
*   163      805 CONTINUE
*   164  C       MODEL TEST
*   165          VA=0.0
*   166          DO 710 I=1,100
*   167          SP = C1(0)
*   168          DO 706 J=1,NA
*   169      706 SP = SP + S( J,I)*C1(J)
*   170          IB = 0
*   171          ICT = 1
*   172          DO 708 J=1,NA
*   173          DO 709 K=J,NA
*   174          LA = J*NA + K - IB
*   175      709 SP = SP + S(J,I)*S(K,I)*C1(LA)
*   176          IB = IB + ICT
*   177      708 ICT = ICT + 1
*   178          SE1(I)=SP-S(I)
*   179      710 VA=VA+SE1(I)*SE1(I)
*   180          VA=VA/AMP
*   181          PRINT 797, (VA)
*   182      797 FORMAT (//,10X,'VARIANCE = ', F8.3)
*   183          IF (VA-20) 715,716,716
*   184      715 DO 712 I=1,NP
*   185          IF (ABS(SE1(I))-3.01) 712,712,400
*   186      712 CONTINUE
*   187      716 PRINT 825
*   188          PRINT 824
*   189      824 FORMAT (10X,'MODEL TEST',//)
*   190          DO 717 I=1,NP
*   191          PRINT 711, (S(I),   SE1(I))
*   192      711 FORMAT (10X,2(5X),F10.5))
*   193  C       S(I) = TRUE SCORE
*   194  C       SE1(I)=ERROR
*   195      717 CONTINUE
*   196          GO TO 401
*   197      400 CONTINUE
*   198      401 CONTINUE
*   199          END
```

PROGRAM ALLOCATIS.

00015 G	03425 S	03735 C1	04127 SE1	
04437 NA	04440 NB	04441 NP	04442 IR	
04443 I81	04444 I	04445 J	04446 K	SUBPROGRAMS REQUIRED
04447 IAP	04450 VA	04451 ISQRC	04452 LAB	
04453 IB	04454 ICT	04455 LA	04456 C	ABS
04460 AMP	04462 S	04464 AF	04466 SQR	THE END
04470 Y	04472 R	04474 SP	04476 SE	
04500 AL	04502 AK	04504 SA	04506 VA	

APPENDIX 37

SELECTED TRAINING ITERATIONS FOR EVALUATION OF THE QUADRATIC PROPORTIONAL ADJUSTMENT SYSTEM

GAIN ADJUSTMENT FACTOR = .7

ITERATION NUMBER 1

TRUE SCORE	ERROR ADJ	ERROR ADJ	GAIN
10.73	-9.43	-14.44	0.00991
7.30	16.13	-4.45	0.00366
2.02	19.13	-5.74	0.00924
4.35	-5.94	1.78	0.01446
4.35	-1.76	0.53	0.01433
10.09	37.63	-8.10	0.02779
0.14	-1.94	0.58	0.01001
1.66	-2.77	-12.43	0.01161
3.35	-0.72	2.42	0.01824
2.35	0.93	-0.28	0.01298
0.56	1.55	-0.46	0.06894
1.22	-3.20	0.96	0.17376
1.54	-2.53	0.76	0.04432
7.74	-1.13	0.43	0.01713
7.24	-7.73	2.32	0.03372
3.16	-0.25	1.27	0.01035
0.26	0.87	-0.26	0.04966
9.57	-9.15	2.75	0.01452
-0.01	3.33	-1.01	0.02075
2.49	-6.55	1.97	0.01640
3.02	-0.34	-1.90	0.03037
0.34	0.25	-0.08	0.02673
2.96	-7.03	2.11	0.07263

-0.43	1.93	-0.57	0.02548	1.44	4.45	9.00	6.46	2.47	5.45	11.47
				5.99	10.10	8.91	7.08	5.47	8.04	5.54
				3.43	6.53	6.41	6.30	7.73	4.32	6.38
				5.71	1.10	2.83	4.86	3.56	4.81	7.56
				3.31	5.10	3.21	9.48	2.48	9.98	2.41

5.75	3.47	-7.16	0.03364
7.23	1.63	-0.48	0.11978
5.72	2.54	-0.76	0.09767
0.59	2.02	-0.61	0.02980
-0.09	5.83	-1.77	0.01803
7.47	17.23	-5.16	0.04792
3.02	-3.61	1.08	0.03873
7.17	0.16	-0.04	0.07076
-0.48	9.21	-2.76	0.07166
-0.01	-5.53	1.67	0.05632
13.66	16.83	-5.04	0.01591
0.96	-3.44	1.04	0.05301
2.30	-3.54	1.06	0.02630

2.39	0.94	-0.28	0.05143
1.43	2.73	-0.62	0.05138
0.67	-2.03	0.63	0.06221
9.87	-1.64	0.50	0.02378
-0.06	5.72	-1.72	0.04444
7.45	0.86	-0.27	0.19758
5.72	-2.09	0.63	0.16523
1.28	-0.69	1.41	0.04464
3.38	-3.56	1.07	0.08627
2.16	-5.04	1.51	0.10813
0.16	-1.68	0.50	0.10921

5.34	-3.23	0.96	0.03303	0.03	2.10	2.40	0.87	3.95	3.81	4.11
				5.06	5.34	4.50	7.69	3.64	5.98	4.34
				2.73	5.12	2.42	5.52	1.63	5.19	3.27
				1.57	1.52	2.39	4.17	2.18	2.72	3.64
				3.31	5.00	3.21	9.48	9.48	9.48	2.01

3.29	-2.11	0.63	0.08509
3.38	-0.34	0.10	0.09229
6.28	3.36	-0.92	0.15623
3.02	-0.56	0.17	0.04667
3.33	0.69	-0.21	0.02546
6.45	1.03	-0.31	0.02399
9.87	1.13	0.34	0.02640
7.47	5.20	-1.64	0.04736
4.71	-1.27	0.38	0.47941
5.72	-1.27	0.38	0.21229
2.02	4.84	-1.45	0.02716
6.02	-1.34	0.40	0.02050
4.60	-1.90	0.57	0.05540
7.47	2.51	-0.75	0.09508
3.68	1.72	-0.52	0.03646
0.36	-2.73	0.81	0.20209
10.21	0.75	-2.33	0.06146
3.33	-3.04	0.91	0.03395
3.36	1.07	-0.32	0.08510
0.36	0.83	-0.10	0.07275
-0.04	-0.65	0.16	0.10035
10.73	0.24	-0.07	0.04625
3.36	0.31	-0.09	0.09109
7.02	0.20	-0.09	0.03728

1.41	-1.24	0.36	0.09341	0.00	1.44	1.36	0.78	0.92	2.06	2.16
				2.68	2.13	3.40	5.24	2.45	3.31	2.48
				2.00	5.10	1.76	4.52	1.10	3.75	3.25
				1.32	1.09	2.50	3.06	1.66	3.00	3.25
				3.31	5.00	3.21	9.48	9.48	9.48	2.01

3.32	1.95	-0.58	0.02635

10.09	+1.61	0.48	0.12874
3.08	1.23	-0.17	0.05316
1.93	1.52	-0.06	0.08066
9.57	-3.27	0.78	0.03302
10.09	0.07	-0.32	0.10597
2.75	-3.85	1.16	0.04230
0.89	-2.36	0.71	0.04064
7.51	-1.72	0.52	0.07891
7.23	-2.27	0.68	0.23453
4.44	-3.42	1.02	0.07145
2.02	4.84	-1.45	0.03617
5.44	-0.65	0.20	0.04433
1.41	0.41	-0.12	0.07699
0.06	-0.05	0.01	0.06131
1.73	3.11	-0.93	0.04495
0.14	-0.01	0.00	0.02948
7.51	1.09	-0.33	0.06626
2.76	7.43	-2.23	0.03613
2.90	-2.95	0.89	0.04622
2.06	-2.23	0.67	0.22910
13.66	2.50	-0.75	0.02340
6.06	1.43	-0.42	0.03895
6.62	-2.18	0.65	0.06804

0.49	6.91	-2.32	0.05501	0.30	0.65	2.26	0.99	3.74	3.92	4.04
				2.44	1.46	3.65	3.24	1.90	3.05	1.45
				1.38	2.22	1.24	2.62	1.09	2.62	1.90
				1.38	1.60	2.67	3.87	1.57	2.01	3.61
				3.31	5.50	3.21	9.48	9.48	9.48	2.01

VARIANCE = 4.166

GAIN ADJUSTMENT FACTOR = .7

ITERATION NUMBER 5

TRUE SCORE	ERROR W/ADJ	ERROR ADJ	GAIN
7.45	+0.33	0.10	0.19146
7.47	0.31	-0.09	0.12362
4.95	0.21	-0.06	0.06686
7.30	0.08	-0.02	0.05442
5.74	+0.35	0.11	0.05856
6.55	-0.04	0.01	0.04448
5.44	-0.72	0.21	0.06407
7.45	-0.17	0.05	0.16573
6.36	0.31	-0.09	0.04926
6.38	-0.41	0.12	0.14954
-0.59	-0.09	0.01	0.07434
0.36	-0.36	0.11	0.07611
-0.49	0.59	-0.18	0.04958
2.76	0.35	-0.11	0.04740
0.49	0.35	-0.10	0.06238
12.71	1.47	-0.44	0.04246
-1.53	-0.29	0.08	0.06500
7.17	-0.02	0.00	0.08040
4.58	-0.11	0.03	0.07291
2.19	-0.14	0.05	0.13657
3.02	0.50	-0.15	0.03775
1.22	-0.52	0.16	0.22637
2.76	0.38	-0.11	0.04461

7.23	-0.11	0.03	0.13831	1.57	0.92	1.60	2.13	2.70	3.66	3.57
				1.52	0.99	1.23	1.49	1.35	1.46	1.49
				1.05	1.01	0.74	1.28	0.97	1.25	1.25
				1.08	1.12	0.88	1.59	1.23	1.55	1.48
				3.91	5.00	3.21	3.48	3.98	3.98	2.01

4.38	0.01	-0.00	0.07556
5.45	-0.23	0.06	0.06477
5.44	0.00	-0.00	0.06301
4.82	0.30	-0.08	0.09903
-0.53	0.75	-0.22	0.04804
4.44	-0.13	0.03	0.08276
7.32	0.12	-0.03	0.04740
1.26	-0.65	0.19	0.13342
7.73	0.41	-0.12	0.08395
1.24	-0.33	0.12	0.10655
3.67	-0.04	0.02	0.09775
2.23	0.12	-0.03	0.11849
2.15	-0.24	0.07	0.10740

12.71	0.52	-0.15	0.04511
7.17	0.16	-0.04	0.07947
6.39	-0.14	0.04	0.07767
3.13	-0.09	0.01	0.05780
7.47	-0.23	0.06	0.12648
7.31	-0.08	0.02	0.08543
1.26	-0.14	0.04	0.08476
2.39	0.04	-0.01	0.06623
-0.39	0.77	-0.23	0.04976
0.36	-0.42	0.13	0.07423
6.38	0.03	-0.00	0.14499
6.92	-0.20	0.05	0.07401
7.17	0.13	-0.05	0.07911
2.30	-0.22	0.06	0.05776
-0.39	0.19	-0.05	0.07529
2.63	-0.26	0.08	0.04291
7.39	0.13	-0.05	0.06638
2.63	-0.10	0.03	0.06226
1.61	-0.13	0.03	0.27764
0.16	0.26	-0.07	0.13261
2.35	0.06	-0.01	0.05570
-0.39	0.06	-0.01	0.07516
2.39	0.06	-0.02	0.06643

2.76	0.17	-0.05	0.04960	1.74	1.13	1.61	1.90	2.62	3.04	3.00
				1.38	1.12	1.18	1.31	0.98	1.24	1.25
				1.04	1.30	0.21	1.30	0.96	1.28	1.23
				1.07	1.10	0.91	1.38	1.20	1.40	1.18
				3.31	3.00	3.21	3.48	3.48	3.48	2.01

VARIANCE = 0.079

GAIN ADJUSTMENT FACTOR = .7

ITERATION NUMBER 10

TRUE SCORE	ERROR UNADJ	ERROR ADJ	GAIN
2.19	-0.00	0.00	0.18994
7.51	0.00	-0.00	0.08589
-0.59	0.02	-0.00	0.07636
2.19	-0.01	0.00	0.13611
5.90	0.08	-0.02	0.12000
2.24	0.02	-0.00	0.05593
1.54	-0.09	0.02	0.10473
1.55	0.09	-0.03	0.07704
1.43	-0.01	0.00	0.08610
1.22	-0.03	0.00	0.20086
5.72	-0.01	0.00	0.17504
0.56	-0.04	0.01	0.15482
2.75	0.03	-0.00	0.05748
-1.10	0.05	-0.01	0.09209
6.32	-0.04	0.01	0.03964
1.55	0.04	-0.01	0.07296
4.48	0.07	-0.02	0.07347
2.19	0.00	-0.00	0.19056
2.02	0.03	-0.01	0.05147
0.16	-0.02	0.00	0.13355
-0.01	0.05	-0.01	0.08259
-1.10	-0.01	0.00	0.09331
2.76	0.06	-0.02	0.05239
3.29	-0.02	0.00	0.10253

1.94	1.00	1.53	2.02	2.48	3.02	3.52
1.07	1.03	1.01	1.02	1.01	1.04	1.07
0.97	1.07	0.94	1.04	0.99	1.01	1.02
1.01	0.99	0.97	1.06	1.01	1.05	1.02
3.31	5.00	3.21	0.48	0.48	0.48	2.01

2.95	-0.04	0.01	0.05830
5.74	0.05	-0.01	0.06267
7.30	0.04	-0.01	0.05721
6.45	-0.04	0.01	0.04695
3.13	-0.05	0.01	0.06078
3.38	-0.03	0.00	0.07530
2.76	0.05	-0.01	0.05234
2.24	-0.02	0.00	0.05587
2.95	-0.01	0.00	0.05831
0.49	0.01	-0.00	0.06612
5.74	0.01	-0.00	0.06273
4.71	-0.01	0.00	0.22689
6.06	0.05	-0.01	0.05330

1.71	0.03	-0.02	0.04724							
2.18	-0.04	0.01	0.10433							
5.34	-0.01	0.00	0.06830							
5.74	0.01	-0.00	0.06281							
4.71	-0.01	0.00	0.22667							
10.73	0.02	-0.00	0.06169							
7.45	-0.03	0.00	0.16669							
3.13	-0.03	0.01	0.06071							
2.23	0.05	-0.01	0.11997							
5.72	0.00	-0.00	0.17474							
0.14	-0.04	0.02	0.04798							
0.14	-0.02	0.00	0.04798	1.36	1.00	1.52	2.01	2.50	3.02	3.50
				1.07	1.03	1.00	1.03	1.00	1.04	1.07
				0.97	1.06	0.98	1.04	0.99	1.01	1.02
				1.01	0.99	0.97	1.05	1.01	1.05	1.03
				3.31	2.00	3.21	9.48	9.48	9.48	2.01
3.36	-0.03	0.01	0.07516							
3.33	-0.02	0.00	0.04966							
-0.49	0.06	-0.02	0.05392							
-1.10	0.01	-0.00	0.09805							
1.42	0.07	-0.02	0.05654							
0.07	-0.01	0.00	0.09465							
0.92	-0.01	0.00	0.07544							
0.34	-0.05	0.01	0.08429							
0.92	0.00	-0.00	0.27537							
3.38	-0.02	0.00	0.08679							
5.44	-0.00	0.00	0.06430							
4.86	0.03	-0.01	0.08574							
0.92	0.00	-0.00	0.07541							
0.36	-0.04	0.01	0.07712							
1.25	-0.02	0.00	0.08472							
2.32	0.05	-0.02	0.05137							
4.32	-0.00	0.02	0.03946							
0.40	-0.04	0.01	0.06042							
1.75	-0.02	0.00	0.05744							
1.33	0.03	-0.01	0.07269							
0.49	-0.01	0.00	0.05955							
-0.49	0.07	-0.02	0.05440							
1.92	-0.01	0.00	0.03963							
1.73	0.11	-0.03	0.06045							
1.73	0.03	-0.01	0.06091	1.35	1.00	1.53	1.99	2.52	3.01	3.45
				1.06	1.02	1.01	1.03	1.00	1.03	1.07
				0.98	1.05	0.99	1.04	1.00	1.01	1.02
				1.01	0.99	0.98	1.04	1.01	1.05	1.02
				3.31	2.00	3.21	9.48	9.48	9.48	2.01
5.72	-0.00	0.00	0.17423							

-1.93	-0.03	0.20	0.0e595
1.05	-0.02	0.00	0.0e4e5
0.75	-0.02	-0.00	0.06631
1.91	-0.02	0.00	0.2e3e8
3.45	-0.02	-0.00	0.13155
1.54	-0.02	0.00	0.1e4e3
7.73	0.12	-0.03	0.0e719
1.28	-0.05	0.01	0.13323
5.77	-0.03	0.00	0.0e134
1.68	0.03	-0.02	0.0e457
2.76	0.03	-0.00	0.05239
7.45	-0.08	0.00	0.1e6e6
4.75	-0.01	0.00	0.10491
7.30	0.05	-0.01	0.05715
4.32	0.01	-0.00	0.07534
1.98	0.01	-0.00	0.04852
4.32	-0.05	0.01	0.09345
0.49	-0.02	0.00	0.05456
2.36	-0.02	0.00	0.18521
7.24	-0.08	0.00	0.1e4e7
0.34	0.02	-0.00	0.0e403
2.95	0.01	-0.00	0.05521
12.71	0.05	-0.01	0.04709

-0.09	-0.03	0.00	0.05344	1.37	1.01	1.02	1.98	2.52	3.01	3.54
				1.04	1.01	1.01	1.02	0.99	1.03	1.06
				0.97	1.06	0.99	1.03	1.00	1.01	1.02
				1.00	1.00	0.97	1.04	1.01	1.05	1.02
				3.31	5.00	3.21	3.68	3.98	9.98	2.01

VARIANCE = 0.001

GAIN ADJUSTMENT FACTOR = .7

ITERATION NUMBER 15

TRUE SCORE	ERROR UNADJ	ERROR ADJ	GAIN							
6.08	0.01	-0.00	0.10283							
5.74	0.00	-0.00	0.06299							
5.34	0.00	-0.00	0.06867							
-1.10	-0.00	0.00	0.09333							
6.55	0.01	-0.00	0.04723							
-1.53	-0.00	0.00	0.06626							
1.73	0.02	-0.00	0.06115							
4.32	-0.00	0.00	0.09325							
3.33	-0.00	0.00	0.05004							
6.36	0.00	-0.00	0.10109							
2.96	-0.01	0.00	0.15487							
0.49	-0.00	0.00	0.06432							
0.67	-0.00	0.00	0.05668							
2.24	0.01	-0.00	0.05624							
1.22	-0.00	0.00	0.19794							
-0.48	-0.01	0.00	0.09178							
6.75	-0.01	0.00	0.10451							
5.34	0.01	-0.00	0.06862							
5.85	-0.00	0.00	0.06764							
7.90	0.01	-0.00	0.06049							
6.55	0.01	-0.00	0.04723							
3.13	0.00	-0.00	0.06115							
7.17	-0.00	0.00	0.08071							
-0.43	-0.00	0.00	0.08462	2.00	1.00	1.51	2.00	2.51	3.00	3.50
				1.01	1.00	1.00	1.00	1.00	1.01	1.01
				0.99	1.01	1.00	1.01	0.99	1.00	0.99
				1.00	1.00	0.99	1.02	1.00	1.01	1.00
				3.31	5.00	3.21	9.48	9.48	9.48	2.01
7.23	-0.00	0.00	0.13118							
2.74	-0.00	0.00	0.06944							
2.76	0.00	-0.00	0.05273							
0.49	-0.00	0.00	0.05393							
5.72	0.00	-0.00	0.17356							
2.75	0.00	-0.00	0.09842							
6.28	0.01	-0.00	0.14092							
0.34	-0.00	0.00	0.08442							
3.13	-0.00	0.00	0.06117							
2.39	-0.01	0.00	0.06486							
2.23	0.00	-0.00	0.12068							
5.74	-0.00	0.00	0.06301							
0.49	-0.00	0.00	0.05897							

4.60	-0.00	0.00	0.06928
0.16	0.00	-0.00	0.13303
4.92	0.00	-0.00	0.09320
2.75	-0.00	0.00	0.05845
0.51	-0.00	0.00	0.15341
1.28	-0.00	0.00	0.13207
10.21	0.01	-0.00	0.10383
0.51	-0.00	0.00	0.15346
2.08	0.00	-0.00	0.20611
0.49	0.00	-0.00	0.05902
10.21	0.00	-0.00	0.10396

2.76	0.00	-0.00	0.05283	1.99	1.00	1.50	1.99	2.50	3.00	3.49
				1.01	1.00	1.00	1.00	1.00	1.01	1.01
				0.99	1.01	1.00	1.01	0.99	1.00	1.00
				1.00	1.00	0.99	1.02	1.00	1.01	1.00
				3.31	5.00	3.21	9.48	9.48	9.48	2.01

7.73	0.00	-0.00	0.06823
5.44	-0.01	0.00	0.06484
-0.01	0.00	-0.00	0.06278
2.95	-0.00	0.00	0.05482
0.28	-0.00	0.00	0.09327
2.24	0.00	-0.00	0.05629
9.37	-0.00	0.00	0.04969
6.85	0.00	-0.00	0.04728
2.75	0.00	-0.00	0.05849
-0.09	0.01	-0.00	0.05333
2.19	-0.00	0.00	0.13838
12.71	-0.01	0.00	0.04752
6.85	0.00	-0.00	0.04728
1.55	-0.00	0.00	0.06964
-0.06	0.02	-0.00	0.07746
0.96	-0.01	0.00	0.07744
0.14	-0.00	0.00	0.04946
-0.09	0.00	-0.00	0.05332
0.30	-0.01	0.00	0.06112
12.71	-0.00	0.00	0.04740
2.96	-0.00	0.00	0.15443
4.88	0.00	-0.00	0.07401
6.85	-0.00	0.00	0.06770
2.19	-0.00	0.00	0.13832

0.28	-0.00	0.00	0.09314	1.99	1.00	1.50	1.99	2.50	3.00	3.50
				1.01	1.00	1.00	1.00	1.00	1.00	1.01
				1.00	1.01	1.00	1.01	0.99	1.00	1.00
				1.00	1.00	0.99	1.01	1.00	1.01	1.00
				3.31	5.00	3.21	9.48	9.48	9.48	2.01

4.88	0.00	-0.00	0.07402

1.43	-0.00	0.00	0.08608							
5.77	-0.00	0.00	0.06177							
5.85	-0.00	0.00	0.06768							
0.56	0.00	-0.00	0.15402							
2.00	0.00	-0.00	0.06054							
1.55	0.00	-0.00	0.08960							
-0.59	0.01	-0.00	0.07671							
3.58	-0.00	0.00	0.06733							
2.96	-0.00	0.00	0.15477							
4.58	0.00	-0.00	0.07404							
-0.36	0.01	-0.00	0.07785							
2.09	-0.00	0.00	0.07774							
0.14	-0.00	0.00	0.04846							
2.09	-0.00	0.00	0.07773							
0.26	-0.01	0.00	0.09317							
2.06	-0.00	0.00	0.20614							
2.74	0.00	-0.00	0.08951							
12.71	0.00	-0.00	0.04749							
2.96	0.00	-0.00	0.15478							
2.39	0.00	-0.00	0.06687							
1.43	-0.00	0.00	0.06608							
1.42	0.01	-0.00	0.05688							
6.06	0.00	-0.00	0.05385							
5.72	-0.00	0.00	0.17403	1.99	1.00	1.50	1.99	2.50	3.00	3.50
				1.01	1.00	1.00	1.00	1.00	1.00	1.01
				1.00	1.01	1.00	1.01	0.99	1.00	1.00
				1.00	1.00	0.99	1.01	1.00	1.01	1.00
				3.31	5.00	3.21	9.48	9.48	9.48	2.01

VARIANCE = 0.000

GAIN ADJUSTMENT FACTOR = .7

ITERATION NUMBER = 18

TRUE SCORE	ERROR ADJ	ERROR ADJ	GAIN
7.45	-0.00	0.00	0.16499
7.45	-0.00	0.00	0.16493
6.58	0.00	-0.00	0.14083
5.74	-0.00	0.00	0.06803
-0.01	-0.00	0.00	0.08267
5.72	-0.00	0.00	0.17379
10.73	0.00	-0.00	0.06194
1.73	0.00	-0.00	0.06115
5.34	-0.00	0.00	0.06876
2.74	-0.00	0.00	0.06942
-0.43	-0.00	0.00	0.08460
3.02	-0.00	0.00	0.04137
4.71	-0.00	0.00	0.22406
0.59	-0.00	0.00	0.06410
-0.48	-0.00	0.00	0.09170
7.47	0.00	-0.00	0.16334
4.71	-0.00	0.00	0.22405
3.38	-0.00	0.00	0.07585
1.28	0.00	-0.00	0.08053
2.36	0.00	-0.00	0.15456
3.33	0.00	-0.00	0.05006
3.36	-0.00	0.00	0.13257
4.48	0.00	-0.00	0.17027

0.34	-0.00	0.00	0.04433	2.00	1.00	1.00	2.00	2.00	3.00	3.00
				1.01	1.00	1.00	1.00	1.00	1.00	1.01
				1.00	1.01	1.00	1.00	1.00	1.00	1.00
				1.00	1.00	1.00	1.01	1.00	1.00	1.00
				0.91	0.00	0.01	0.98	0.98	0.98	0.01

2.19	-0.00	0.00	0.13920
5.77	0.00	-0.00	0.06176
1.68	0.00	-0.00	0.04872
10.73	0.00	-0.00	0.06194
-0.17	0.00	-0.00	0.04376
3.02	-0.00	0.00	0.08803
4.05	0.00	-0.00	0.06799
7.23	-0.00	0.00	0.13116
2.39	-0.00	0.00	0.06680
3.36	-0.00	0.00	0.13256
2.19	0.00	-0.00	0.13828
6.36	0.00	-0.00	0.14084
1.97	-0.00	0.00	0.04569

6.28	0.00	-0.00	0.14028							
3.38	-0.00	0.00	0.06732							
3.38	-0.00	0.00	0.06732							
3.62	-0.00	0.00	0.07576							
10.21	0.00	-0.00	0.10384							
6.85	-0.00	0.00	0.04731							
0.28	-0.00	0.00	0.09319							
5.44	-0.00	0.00	0.06485							
3.62	-0.00	0.00	0.07577							
3.36	-0.00	0.00	0.09364							
3.68	-0.00	0.00	0.06733							
1.55	0.00	-0.00	0.07285	2.00	1.00	1.50	2.00	2.50	3.00	3.50
				1.01	1.00	1.00	1.00	1.00	1.00	1.01
				1.00	1.01	1.00	1.00	1.00	1.00	1.00
				1.00	1.00	1.00	1.01	1.00	1.00	1.00
				3.31	3.00	3.21	9.48	9.48	9.48	9.01
1.41	-0.00	0.00	0.08941							
6.38	0.00	-0.00	0.14091							
0.14	0.00	-0.00	0.04550							
2.39	-0.00	0.00	0.06582							
10.73	0.00	-0.00	0.06106							
4.95	0.00	-0.00	0.06801							
-0.46	-0.00	0.00	0.09173							
-0.39	0.00	-0.00	0.05339							
0.34	-0.00	0.00	0.08435							
6.06	-0.00	0.00	0.05391							
4.44	-0.00	0.00	0.08473							
6.38	0.00	-0.00	0.14092							
4.48	-0.00	0.00	0.17043							
7.19	0.00	-0.00	0.13840							
3.13	0.00	-0.00	0.06126							
6.38	-0.00	0.00	0.14092							
1.28	-0.00	0.00	0.08962							
7.17	-0.00	0.00	0.08068							
3.33	0.00	-0.00	0.05007							
-0.31	0.00	-0.00	0.08266							
0.67	-0.00	0.00	0.09644							
-0.09	0.00	-0.00	0.05338							
0.16	0.00	-0.00	0.13302							
2.24	-0.00	0.00	0.10819							
10.21	0.00	-0.00	0.10385	2.00	1.00	1.50	2.00	2.50	3.00	3.50
				1.01	1.00	1.00	1.00	1.00	1.00	1.01
				1.00	1.01	1.00	1.00	1.00	1.00	1.00
				1.00	1.00	1.00	1.01	1.00	1.00	1.00
				3.31	3.00	3.21	9.48	9.48	9.48	9.01
5.65	-0.00	0.00	0.06773							

1.43	-0.00	0.00	0.08612
-0.43	-0.00	0.00	0.08463
3.16	0.00	-0.00	0.04117
-0.59	0.00	-0.00	0.07675
-0.17	0.00	-0.00	0.04328
2.09	-0.00	0.00	0.07775
5.72	-0.00	0.00	0.17390
0.96	-0.00	0.00	0.07741
1.43	-0.00	0.00	0.08611
5.77	-0.00	0.00	0.06178
7.45	-0.00	0.00	0.16497
3.02	0.00	-0.00	0.06802
3.68	-0.00	0.00	0.06733
5.77	-0.00	0.00	0.06177
0.70	0.00	-0.00	0.06673
0.49	-0.00	0.00	0.06811
2.02	0.00	-0.00	0.05191
2.96	-0.00	0.00	0.15461
3.16	0.00	-0.00	0.04116
2.39	-0.00	0.00	0.06679
2.02	0.00	-0.00	0.05191
5.77	-0.00	0.00	0.06177
4.71	-0.00	0.00	0.22408

3.02	0.00	-0.00	0.06802	2.00	1.00	1.50	3.00	2.50	3.00	3.50
				1.00	1.00	1.00	1.00	1.00	1.00	1.00
				1.00	1.01	1.00	1.00	1.00	1.00	1.00
				1.00	1.00	1.00	1.01	1.00	1.00	1.00
				3.31	5.00	3.21	9.48	9.48	9.48	2.01

VARIANCE = 0.000

APPENDIX 38

PROGRAM FOR ON-LINE REGRESSION ANALYSIS

```
$JOB,
$ASSIGN S=MTC, SI=CR,LO=LP, B0=MT1,
$FORTRAN SI,LO, 30,
*     1  *
*     2  C      EMC ARM 68-15-1-1
*     3  C      TEST OF SN-LINE RECRESSION COMPUTATION
*     4         DIMENSION SUMX(15),SUMYX(15),SUMXX(15,15),B(15),A(15),SUMBXX(15)
*     5         DIMENSION X(15)
*     6         READ 101,(A(I),I=1,10)
*     7         READ 101,(B(I),I=1,10)
*     8         READ 100, IR
*     9  101    FORMAT (10F5.2)
*    10  100    FORMAT (I7)
*    11         READ 102,CC
*    12         PRINT 103,(A(I),I=1,10)
*    13         PRINT 103,(B(I),I=1,10)
*    14  103    FORMAT (10X,10F10.5)
*    15  102    FORMAT (F10.5)
*    16  C      INITIAL CONDITIONS
*    17         IBIG = 5**9
*    18         SMALL=1./(2**23-1)
*    19         DO 300,K=1,15
*    20         SUMYX(K) =0.
*    21         SUMX(K)=0.
*    22         DO 301,J=1,15
*    23         SUMXX(J,K)=0.
*    24   301   CONTINUE
*    25   300   CONTINUE
*    26         ICOUNT =0
*    27         IC =0
*    28         SUMBX=0.
*    29         SUMY=0.
*    30         NNN=15
*    31  C      COMPUTE VARIABLE VALUES
*    32         DO 750,JJ=1,NNN
*    33         IC=IC+1
*    34         DO 10,I=1,10
*    35         IR = IR*IBIG
*    36         R=[[IR*0.5]*SMALL]*10.
*    37         X(I)=R
*    38   10    CONTINUE
*    39         PRINT 1
*    40   1     FORMAT (10X,5X(I)=5)
*    41         PRINT 103,(X(I),I=1,10)
*    42  C      COMPUTE DATA VALUES
*    43         YN=0.
*    44         DO 11, I=1,10
*    45         YN=A(I)*X(I)+YN
*    46   11    CONTINUE
*    47         IR=IR*IBIG
*    48         R=[[IR*0.5]*SMALL]*CC
*    49         Y= YN+R
*    50         PRINT 5,Y,YN
```

```
    2     FORMAT (10X,2(F10.5,2X))
C
C
C     UPDATE MEMORY FACTORS
      SUMY=SUMY+Y
      IF(SENSE SWITCH 2)50,51
   50 PRINT 3,SUMY
   51 CONTINUE
    3 FORMAT(10X,' SUMY=',F10.5)
      DO 302,K=1,10
      SUMYX(K)=SUMYX(K)+Y*X(K)
      SUMX(K) = SUMX(K) + X(K)
      DO303,J=1,10
      SUMXX(J,K)=SUMXX(J,K)+X(J)*X(K)
  303 CONTINUE
      IF(SENSE SWITCH 2)152,53
  152 PRINT 4,(SUMXX(KJK,K),KJK=1,10)
   53 CONTINUE
  302 CONTINUE
      IF(SENSE SWITCH 2)54,55
   54 PRINT 4,(SUMX(K),K=1,10)
      PRINT 4,(SUMYX(K),K=1,10)
   55 CONTINUE
    4 FORMAT(10X,10(F9.2,2X))
  750 CONTINUE
C
C
C
C
C     ADJUST MENT MODE
 8024  ICOUNT= ICOUNT +1
      DO 8020,K=1,10
      B(K)=0.
 8012 SUMBX=0.
      DO 8001,JJ=1,10
      SUMBXX(JJ)=0.
 8001 CONTINUE
      DO 8002,JJ=1,10
      SUMBX=SUMBX+B(JJ)*SUMX(JJ)
      SUMBXX(K)=SUMBXX(K)+B(JJ)*SUMXX(JJ,K)
 8002 CONTINUE
      AA=-SUMYX(K)+SUMY*SUMX(K)/IC-(SUMX(K)/IC)*SUMBX+SUMBXX(K)
      IF(B(K)-.9)8010,8011,8011
 8010 CC=AA
      B(K)=1.
      GO TO 8012
 8011 BB=AA-CC
      IF(ABS(BB)-.001)8013,8014,8014
 8013 BB=.001
 8014 B(K)=-CC/BB
 8020 CONTINUE
      IF(SENSE SWITCH 3) 8021,8022
 8021 PRINT 104,(B(I),I=1,10)
  104 FORMAT(10X,'B(I)=',10F10.5)
```

```
      105      PRINT 105,
      106  105 FORMAT(10I
      107  C
      108  C
      109  C
      110  C     TEST MODE
      111  8022  IF(SENSE SWITCH 4) 8023,8024
      112  8023  SUMBX=0.
      113        DO 7024 JJ=1,10
      114        SUMBX =SUMBX+B(JJ)*SUMX(JJ)
      115        SUMBXX(JJ)=0.
      116  7024  CONTINUE
      117        ERROR=0.
      118        DO7025 K=1,10
      119        DO 7026 JJ=1,10
      120        SUMBXX(K)=SUMBXY(K)+B(JJ)*SUMXX(JJ,K)
      121  7026  CONTINUE
      122        ERROR=ERROR+ABS(-SUMYX(K)    +SUMY*SUMX(K)/IC-(SUMX(K)/IC)*SUMBX
      123       1          +SUMBXX(K))
      124  7025  CONTINUE
      125        PRINT 106, ERROR
      126  106   FORMAT(10X,'ERROR =',E10.5)
      127        GO TO 8024
      128  *     END
```

PROGRAM ALLOCATION

00005 SUMX	00043 SUMYX	00101 SUMXX	01003 B
01041 A	01077 SUMBXX	01135 X	01173 I
01174 IR	01175 IBIG	01176 K	01177 J
01200 ICOUNT	01201 IC	01202 NAN	01203 JJ
01204 KJK	01205 CC	01207 SMALL	01211 SUMBX
01213 SUMY	01215 R	01217 YN	01221 Y
01223 AA	01225 BB	01227 ERROR	

SUBPROGRAMS REQUIRED

ABS
THE END

APPENDIX 39

PROGRAM FOR GENERATION AND TEST OF MacDONALD CODES

```
ΔJOB.
ΔASSIGN S=MIO, SI=CR,LO=LP, LO=MT1.
ΔFORTRAN SI, LO, 60.
=      1  *
=      2  C       E.G. ANY 06=13
=      3  C       PROGRAM FOR GENERATION AND TEST OF MAC DONALD CODES
=      4          DIMENSION ICODE[6], KCODE[64], IC[6]
       5          DO 10,I=1,64
       6          N=I
       7          NI=64
       8  C       GENERATE HARMONIC SEQUENCES
       9          DO 11,II=1,6
      10          III=7-II
      11          NI =NI/2
      12          IF[ I-NI] 13,13,12
      13    12    ICODE[III]=-1
      14          N=N-NI
      15          GO TO 11
      16    13    ICODE[III] =1
      17    11    CONTINUE
      18          PRINT 22,[ ICODE[K] , K=1,6]
      19    22    FORMAT[ 10X,6[I2,2X]]
      20  C       NOTE  -1 IS USED AS A LOGICAL 1
      21  C         +1 IS USED AS A-BOOLEAN  0
      22  C       GENERATE ASSEMBLY CODES AND MAC CODES
      23          DO 14,K=1,64
      24          KCODE[K]=1
      25          NII=K
      26          NI=64
      27          DO 15,J=1,6
      28          JJ=7-J
      29          NI =NI/2
      30          IF[NII-NI] 16,17,17
      31    17    IC[JJ]=1
      32          NII=NII-NI
       3          GO TO 15
       4    16    IC[JJ] =0
            15    CONTINUE
                  DO 18, J=1,6
                  IF[IC[J]]18,18,25
            25    KCODE[K]=KCODE[K]*ICODE[J]
            18    CONTINUE
                  IF[ KCODE[K]] 20,21,21
            20    KCODE[K] =1
                  GO TO 26
            21    KCODE[K] =0
            26    CONTINUE
            14    CONTINUE
                  PRINT 19,[KCODE[M], M=1,64]
            19    FORMAT[ 10X, 64I1]
            10    CONTINUE
                  END
```

APPENDIX 40

PROGRAM FOR GENERATION OF BIASED BTS SEQUENCES

```
$JOB.
$ASSIGN S.MTO. SI=CR.LO=LP. B9=MT1.
$FORTRAN ST. LA. B9.
*     1  C      EMC AMY 66.17
*     2  C      GENERATION OF BIASED SEQUENCES FOR ABSOLUTE COMP TECH
*     3         DIMENSION ICODE[10,64]
*     4         DIMENSION ISUNT[64]  , ISUML[64]
*     5         DIMENSION ICODE[64], IC[6], IXHIG[6,20], ISIG[128], ICODE[6]
*     6         DIMENSION IR[10], IIR[10], IA[10], N[10], P[10]
*     7         DIMENSION RN[10], A[10]
*     8         DIMENSION ISGL[64]
*     9         DIMENSION XN[10], SN[10]
*    10  C      READ INITIAL VALUES
*    11         READ 100, IRR
*    12         READ 102,(RN[I] ,I=1,10)
*    13         PRINT 103, (RN[I], I=1,10)
*    14         READ 102,( SN[I], I=1,10 )
*    15         PRINT 106,( SN[I], I=1,10)
*    16  106    FORMAT( 10X,  10(F5.2))
*    17  103    FORMAT(10X,$RN[I]=$,10(F5.2))
*    18         DO 9, I=1,10
*    19         READ 100, IR[I]
*    20    9    CONTINUE
*    21  100    FORMAT( I8)
*    22         READ 102 , (A[I],I=1,10)
*    23  102    FORMAT( 10F5.2)
*    24         IBIG = 5**9
*    25         SMALL = 1./(2**23-1)
*    26  C      STORE INITIAL VALUES
*    27         DO 8,I=1,10
*    28         IIR[I] =IR[I]
*    29    8    CONTINUE
*    30  C      COMPUTE SCORE
*    31  C       STEP 1 SELECT PROBABILITIES
*    32         IF( SENSE SWITCH 4) 250,251
*    33  250     READ 102,( P[I], I=1,10)
*    34         GO TO 252
*    35  251    CONTINUE
*    36   52    DO 40,I=1,10
*    37         IRR = IRR*IBIG
*    38         R=(IRR*0.5)*SMALL)*0.2
*    39         P[I] = 0.9+R
*    40   40    CONTINUE
*    41  252    CONTINUE
*    42         PRINT 41,(P[I] ,I=1,10)
*    43   41    FORMAT(10X,$P[I]=$, 10F8.4)
*    44         SCORE =0.
*    45         DO 50,I=1,10
*    46         SCORE = A[I]* P[I] + SCORE
*    47   50    CONTINUE
*    48         SCORE = 100- SCORE
*    49         PRINT 51, SCORE
*    50   51    FORMAT(10X,$ SCORE=$, F10.4)
```

```
      C     P(I) IS THE PROBABILITY OF ADDING NOISE TO INPUT I
      C     RN(I)  IS PROB OF EACH BIT IN INPUT I OF BEING A 1
      C     IR(I) IS THE RANDOM NUMBER USED TO GENERATE INPUT(I)
      C      ISET REPRESENTS ONE SET OF 64 POSSIBLE CODES
      READ 104, KV
  104 FORMAT(I4)
      IMAX =0
      ISET =1
      NI=2
      IF( ISET-8) 200,200,201
  201 CONTINUE
      ISET =1
      IMAX =0
      IF(KV-10) 76,77,77
   77 STOP
   76 KV = KV+1
      NI=2
  200 CONTINUE
      IMAX = IMAX +8
      C     GENERATE MAC CODES AND COMPUTE CORRELATION
      C        K IS A CODE INDICATOR
      C        I IDENTIFIES EACH BIT OF A CODE
      DO 10,I=1,64
      JN =0+I
      MS =1
      NI=64
      C     GENERATE HARMONIC SEQUENCES
      DO 11,II=1,6
      III=7-II
      NI =NI/2
      IF(MS-NI) 13,12,12
   12 ICODE(III)=-1
      MS = MS +NI
      GO TO 11
   13 ICODE(III) =1
   11 CONTINUE
      C     NOTE  -1 IS USED AS A LOGICAL 1
      C      +1 IS USED AS A LOGICAL  0
      C     GENERATE ASSEMBLY CODES AND MAC CODES
      DO 14,K=1,64
      KCODE(K)=1
      NII=K
      NI=64
      DO 15,J=1,6
      JJ=7-J
      NI =NI/2
      IF(NII-NI) 16,17,17
   17 IC(JJ)=1
      NII=NII-NI
      GO TO 15
   16 IC(JJ) =0
   15 CONTINUE
      DO 18, J=1,6
      IF(IC(J))18,18,25
```

```
      105   2b     KCODE(K)=KCODE(K)+ICODE(J)
      106   1a     CONTINUE
      107   1.     CONTINUE
      108          KI=0
      109          DO 225,K= IMAX,27, IMAX
      110          KI =KI+1
      111          KICODE(KI,I) = ICODE(K)
      112   225    CONTINUE
      113   13     CONTINUE
      114   C      RN(KV) IS A BIAS ON THE RANDOM SEQ
      115   C      KV INDICATES AN INPUT SEQUENCE
      116          LT =0
      117   66     FORMAT(2H2,10X,8HINPUT SEQ=,I4)
      118          INDEX=1
      119          DO 1003,IN=1,20
      120          DO 1004,I=1,64
      121          IXHIS(IN,I)=0
      122   1004   CONTINUE
      123   1003   CONTINUE
      124          ISI =1
      125   C      GENERATE FIRST 128 BITS OF INPUT SEQ
      126          DO 120,I=1,64
      127          ISUL(I) =0
      128          ISUM(I) =0
      129          ISUM(I) =0
      130   120    CONTINUE
      131   65     LT =LT+1
      132          DO 20, IN=INDEX, 128
      133          IR(KV) = IR(KV)*IBIG
      134          R=(IR(KV)*0.5)*SMALL  +.5
      135          IF(ISI) 256,257,257
      136   257    XN(KV)= RN(KV)
      137          GO TO 258
      138   256    XN(KV) = SN(KV)
      139   258    CONTINUE
      140          IF( R-XN(KV)) 21,21,22
      141   22     ISIG(IN) =1
      142          GO TO 23
      143   21     ISIG(IN) =-1
      144   23     CONTINUE
      145          IR=IR*IBIG
      146          R=((IR+0.5)*SMALL+ 0.5)
      147          IF( R-P(KV))31,31,32
      148   31     XX=-1
      149          GO TO 30
      150   32     XX=1
      151   3.     ISIG(IN) = ISIG(IN)*XX
      152          ISI = ISIG(IN)
      153   20     CONTINUE
      154   C         L IS A SHIFT CONTROL
      155   C      COMPUTE CORRELATION
      156          DO 330, L=0,63
      157          DO 330,I=1,64
      158          JN = L+I
```

```
      159            DO 314,K=1,8
      160            ISUML[K] = ISUML[K]+ ISIG[JN]*KI[CODE[K,I]
      161     314    CONTINUE
      162     310    CONTINUE
      163            IF[ SENSE SWITCH 3] 131,132
      164     131    CONTINUE
      165            PRINT 412, [ISUML[K], K=1,8]
      166     412    FORMAT[ 10X,8[I6,2X]]
      167     132    CONTINUE
      168            DO 121, K=1,8
      169            ISUMT[K] = ISUMT[K] + ISUML[K]
      170            ISQL[K] = ISQL[K] + ISUML[K]**2
      171            DO 1000, I=1,2
      172            IF[ISUML[K]-[-33+3*I]] 1001,1001,1000
      173    1001    IXHIS[K,I] = IXHIS[K,I] +1
      174            GO TO 1002
      175    1000    CONTINUE
      176    1002    CONTINUE
      177            ISUML[K] =0
      178     121    CONTINUE
      179     330    CONTINUE
      180     C      TOTAL SHIFT DETECT
      181            IF[ II-2 ] 60,61,61
      182      61    GO TO 67
      183      60    CONTINUE
      184     C      TRANSFER OPERATION
      185            DO 62, I=1,64
      186            IN = 64+ I
      187            ISIG[I ] = ISIG[IN]
      188      62    CONTINUE
      189            INDEX = 64
      190            GOTO 65
      191      67    CONTINUE
      192            IF[ISET-NI] 80,80,81
      193      81    NI=NI+2
      194            PRINT 82
      195      82    FORMAT[1H1]
      196      80    CONTINUE
      197            PRINT79
      198      79    FORMAT[///]
      199     C      DATA ANALYSIS
      200            PRINT 70, KV, IIR[KV]
      201      70    FORMAT[ 2H2,10X,*CORRELATION VALUES FOR INPUT SEQ*,I4,/,10X,*
      202           1 STARTING RANDOM NUMBER =*, I8]
      203            PRINT 71, SCORE
      204      71    FORMAT[10X,* SCORE =*,F10.2,44X,*  HISTOGRAM*]
      205            PRINT 73
      206      73    FORMAT[10X,*MAC CODE          MEAN    VARIANCE TOTAL -30 -27 -24 -21
      207           1-18 -15 -12 -9 -6  -3  0   3   6   9  12  15  18  21  24  27  3
      208           20*]
      209      72    FORMAT[/,13X, I4,6X,F8.2,4X,F6.2,4X,I4,3X,20[I3,1X]]
      210     C      COMPUTE MEAN, VAR , TOTAL
      211            DO 74, K=1,8
      212            MEAN = ISUMT[K]/768.
```

```
*  213          VAR=(.768**ISQ(K)*(ISUM(K)**2)/(748.**2)
*  214          ITOT=0
*  215          DO 75,IAN=1,20
*  216          ITOT= ITOT+ IXHIS(K,IAN)
*  217    75    CONTINUE
*  218          KL=K+ IMAX-8
*  219          PRINT 72,KL,MEAN,VAR,ITOT,(IANHIS(K,INN),INN=1,20)
*  220    74    CONTINUE
*  221          ISET = ISET+1
*  222          IF( ISET -8) 200,200,201
*  223    *     END
```

PROGRAM ALLOCATION

00006	KCODE	01206	ISUM	01306	ISQ	01406	ICODE
01506	IC	01514	IXHIS	04114	ISIG	04314	ICODE
04322	IR	04334	IIR	04346	IA	04360	N
04372	P	04416	RN	04442	A	04466	ISQ
04566	XN	04612	SN	04636	IRR	04637	I
04640	IBIG	04641	KV	04642	IMAX	04643	ISET
04644	MIN	04645	J	04646	L	04647	MN
04650	NI	04651	II	04652	III	04653	K
04654	NII	04655	J	04656	JJ	04657	KI
04660	LI	04661	INDEX	04662	IAN	04663	JS
04664	IST	04665	N	04666	MEAN	04667	ITOT
04670	IAN	04671	KL	04672	SMALL	04674	R
04676	SCORE	04700	VAR				

APPENDIX 41

RESULTS OF EXPERIMENT ONE IN ABSOLUTE COMPUTATION TECHNIQUES

STARTING RANDOM NUMBER = 8349982

SCORE = 50.52

MAP CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
1	32.70	768		0 0 0 0 0 3 43 23 108 111 217 114 85 39 32 9 1 0 0 0
2	50.27	768		0 0 0 0 12 10 34 42 118 83 190 82 123 36 37 11 10 0 0 0
3	50.44	768		0 0 0 0 6 11 32 28 113 56 169 78 135 42 48 15 14 1 0 0
4	36.69	768		0 0 0 1 1 2 36 35 128 102 163 82 129 35 24 5 2 1 0 0
5	41.33	768		0 0 0 0 0 2 25 42 128 75 143 80 160 54 48 9 2 0 0 0
6	36.44	768		0 0 0 0 2 2 19 31 105 91 174 105 148 44 36 8 2 1 0 0
7	41.29	768		0 0 0 0 2 5 45 39 136 81 159 70 153 45 27 5 1 0 0 0
8	38.84	768		0 0 0 0 1 7 39 34 115 98 213 77 112 41 31 7 3 0 0 0

2, CORRELATION VALUES FOR INPUT SET 2

STARTING RANDOM NUMBER = 8349982

SCORE = 50.52

MAP CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
9	42.28	768		0 0 0 0 2 7 23 30 114 83 163 87 159 39 48 6 6 1 0 0
10	38.13	768		0 0 0 1 3 1 21 26 106 90 161 98 145 45 34 12 4 0 1 0
11	39.06	768		0 0 0 0 3 9 35 36 106 106 192 90 115 37 29 6 4 0 0 0
12	32.42	768		0 0 0 0 0 1 15 31 112 87 192 93 147 49 36 6 1 0 0 0
13	41.02	768		0 0 0 1 4 8 30 36 139 80 167 77 130 34 37 5 5 0 0 0
14	38.29	768		0 0 0 1 3 6 32 35 133 81 197 89 115 41 29 3 2 1 0 0
15	38.92	768		0 0 0 0 2 3 22 38 104 74 185 93 150 46 33 13 5 0 0 0
16	46.76	768		0 0 0 2 6 9 45 34 119 85 180 91 102 37 43 4 10 1 0 0

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8369982

SCORE = MAT CODE	MEAN	VARIANCE	TOTAL	<-27	<-24	<-21	<-18	<-15	<-12	<-9	<-6	<-3	0	3	6	9	12	15	18	21	24	27	30
	50.52											HISTOGRAM											
17	50.00	51.30	768	0	0	0	0	8	3	40	39	99	53	187	80	145	22	64	11	15	0	0	0
18	50.00	52.26	768	0	0	0	0	4	8	42	34	107	68	163	68	138	50	57	17	11	0	1	0
19	50.00	54.23	768	0	0	1	1	7	13	49	50	116	78	154	88	117	48	46	9	11	1	1	0
20	50.00	54.11	768	0	0	0	0	11	5	41	36	110	58	165	84	119	46	57	22	12	1	1	0
21	50.00	46.76	768	0	0	0	3	3	8	46	23	128	95	169	76	114	43	45	6	3	2	0	0
22	50.00	51.94	768	0	0	0	2	12	10	38	45	109	82	181	87	118	48	34	10	9	3	0	0
23	50.00	48.28	768	0	1	0	2	3	6	21	43	104	64	178	98	127	44	54	12	7	2	2	0
24	50.00	35.53	768	0	0	0	0	0	2	22	29	99	81	214	104	132	35	45	11	4	0	0	0

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8369982

SCORE = MAT CODE	MEAN	VARIANCE	TOTAL	<-27	<-24	<-21	<-18	<-15	<-12	<-9	<-6	<-3	0	3	6	9	12	15	18	21	24	27	30
	50.52											HISTOGRAM											
25	50.00	44.27	768	0	0	0	0	6	6	37	47	126	72	199	66	121	39	38	6	6	0	0	0
26	50.00	51.89	768	0	0	1	2	8	9	49	38	114	81	177	72	115	39	43	11	8	1	0	0
27	50.00	46.71	768	0	0	0	0	3	9	26	32	112	74	175	94	123	45	55	12	6	1	1	0
28	50.00	38.36	768	0	0	0	0	3	7	30	30	128	95	167	113	109	42	19	4	1	0	0	0
29	50.00	44.67	768	0	0	0	0	3	2	36	23	116	86	160	82	141	50	53	6	10	0	0	0
30	50.00	45.67	768	0	0	0	0	2	8	32	34	96	87	162	77	146	57	52	6	6	2	1	0
31	50.00	42.29	768	0	0	0	0	4	5	41	38	137	82	173	80	127	38	31	9	3	0	0	0
32	50.00	37.43	768	0	0	0	0	5	4	24	36	145	88	262	76	119	38	19	4	6	2	0	0

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8349982
SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	59.21	768	0	0	0	0	4	9	45	43	127	68	115	83	129	70	67	15	11	1	1	0	
34	0.00	45.13	768	0	0	0	1	2	3	37	20	112	77	174	81	141	52	50	9	6	2	1	0	
35	0.00	45.31	768	0	0	1	1	4	6	40	42	122	82	178	81	129	30	42	6	1	1	2	0	
36	0.00	42.42	768	0	0	0	0	2	10	21	24	114	76	160	95	135	46	45	10	9	0	1	0	
37	0.00	45.78	768	0	0	0	0	6	4	45	49	115	78	174	83	119	42	38	11	4	0	0	0	
38	0.00	41.28	768	0	0	0	1	8	6	26	38	120	87	191	84	131	34	32	5	5	0	0	0	
39	0.00	45.55	768	0	0	0	1	0	12	23	36	111	77	162	94	129	52	53	14	3	0	1	0	
40	0.00	48.90	768	0	0	1	2	1	4	31	28	120	74	170	79	130	41	68	12	5	0	2		

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8349982
SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	48.39	768	0	0	0	0	10	12	40	38	133	70	160	71	118	43	40	9	3	0	1	0	
42	0.00	42.79	768	0	0	0	0	5	8	47	34	123	76	168	81	126	38	33	5	4	0	0	0	
43	0.00	43.99	768	0	0	0	0	2	3	35	21	128	74	170	81	128	55	57	7	7	0	0	0	
44	0.00	42.38	768	1	0	1	0	1	8	29	50	140	74	144	88	123	49	32	4	4	0	0	0	
45	0.00	42.57	768	0	0	0	0	4	4	23	29	117	75	180	86	141	43	48	8	10	0	0	0	
46	0.00	41.52	768	0	0	0	1	3	4	27	31	101	75	192	74	156	34	54	11	4	0	1	0	
47	0.00	43.12	768	0	0	0	3	3	4	34	47	136	80	161	71	120	39	42	3	5	0	0	0	
48	0.00	39.34	768	0	0	1	1	8	4	27	18	91	74	192	106	160	46	23	9	8	0	0	0	

2, CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8349982

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
49	50.00	56.19	768	0	0	2	0	8	13	48	33	113	72	170	91	122	24	43	15	9	2	1	0	
50	50.00	35.47	768	0	0	0	0	4	3	30	32	116	92	204	103	118	24	37	4	1	0	0	0	
51	50.00	33.56	768	0	0	0	0	1	3	23	16	104	83	223	89	133	53	29	5	6	0	0	0	
52	50.00	54.84	768	0	0	0	1	11	12	40	51	124	59	165	85	101	47	49	15	8	0	0	0	
53	50.00	62.31	768	0	0	2	2	3	16	44	32	105	65	156	74	127	42	67	12	19	2	2	0	
54	50.00	52.60	768	0	0	0	2	4	9	35	37	98	84	160	63	138	64	46	18	7	1	2	0	
55	50.00	56.17	768	0	0	0	2	8	16	50	47	118	57	152	93	115	39	44	13	12	1	1	0	
56	50.00	45.99	768	0	0	0	0	7	4	42	47	133	72	158	60	138	34	38	10	4	0	0	0	

2, CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8349982

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57	50.00	41.92	768	0	0	0	0	5	5	24	23	106	82	164	98	131	45	43	8	10	0	0	0	
58	50.00	48.50	768	0	0	0	0	3	4	38	33	115	70	163	85	135	46	53	11	9	1	2	0	
59	50.00	49.15	768	0	0	1	0	5	11	36	40	152	84	151	80	121	46	47	10	4	0	0	0	
60	50.00	52.58	768	0	0	1	1	6	10	39	22	110	72	160	67	119	49	59	17	12	2	0	0	
61	50.00	38.70	768	0	0	1	0	4	8	30	31	118	94	210	60	120	30	35	4	3	0	0	0	
62	50.00	55.03	768	0	0	2	0	10	9	40	42	130	83	163	78	115	26	47	11	14	3	0	0	
63	50.00	51.33	768	0	0	0	2	5	7	34	26	118	60	172	78	148	43	46	12	16	1	0	0	
64	50.00	51.33	768	0	0	0	2	5	7	34	26	118	60	172	78	148	43	46	12	16	1	0	0	

2, CORRELATION VALUES FOR INPUT SEQ 3

STARTING RANDOM NUMBER = 1152542

SCORE = 50.52

VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	0.00	20.58	768	0	0	0	0	0	0	21	18	109	100	308	94	83	25	10	0	0	0	0	0
2	0.00	45.83	768	0	0	0	0	6	9	39	51	134	68	161	70	130	30	34	14	2	0	0	0
3	0.00	46.50	768	0	0	0	0	0	9	32	28	123	71	171	71	141	51	50	12	9	0	0	0
4	0.00	34.72	768	0	0	0	0	0	2	37	37	156	86	155	95	140	31	29	0	0	0	0	0
5	0.00	29.67	768	0	0	0	0	0	2	19	22	84	81	249	105	135	29	36	6	2	0	0	0
6	0.00	34.25	768	0	0	0	0	0	0	20	24	123	93	160	89	170	42	44	3	0	0	0	0
7	0.00	30.22	768	0	0	0	0	2	4	26	31	121	94	245	98	96	22	27	2	0	0	0	0
8	0.00	28.36	768	0	0	0	0	0	4	18	33	146	86	222	98	117	22	9	3	0	0	0	0

2. CORRELATION VALUES FOR INPUT SET 3

STARTING RANDOM NUMBER = 1152542

SCORE = 50.52

VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
9	0.00	36.20	768	0	0	0	0	0	2	27	20	111	75	245	87	148	40	44	4	5	0	0	0
10	0.00	35.29	768	0	0	0	0	1	2	20	26	102	84	249	93	136	38	46	8	2	1	0	0
11	0.00	37.18	768	0	0	0	1	2	9	29	40	128	82	235	95	109	31	29	7	1	0	0	0
12	0.00	36.74	768	0	0	0	1	1	5	19	22	106	77	216	80	150	39	38	9	4	0	1	0
13	0.00	37.11	768	0	0	0	0	2	7	29	49	120	83	202	88	124	24	35	4	1	0	0	0
14	0.00	35.81	768	0	0	0	0	4	4	32	28	137	90	218	83	116	30	30	4	2	0	0	0
15	0.00	38.80	768	0	0	0	0	3	3	31	21	94	92	189	101	138	39	39	12	5	1	0	0
16	0.00	34.67	768	0	0	0	0	1	7	31	31	138	86	217	76	124	20	33	3	1	0	0	0

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING ADDR. NUMBER = 1152542
SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -33	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	35.18	768	0	0	0	0	2	2	24	15	111	77	196	106	151	43	28	8	4	1	0	0	
18	0.00	26.11	768	0	0	0	0	1	0	9	18	98	79	244	107	149	29	30	2	2	0	0	0	
19	0.00	24.72	768	0	0	0	0	0	1	24	29	134	100	236	89	112	26	16	1	0	0	0	0	
20	0.00	36.41	768	0	0	0	0	2	0	25	19	120	77	188	103	140	44	44	6	2	0	0	0	
21	0.00	32.26	768	0	0	0	0	0	4	33	29	149	89	199	89	112	42	19	3	0	0	0	0	
22	0.00	32.76	768	0	0	0	0	3	5	28	32	136	102	193	94	120	34	16	4	2	0	0	0	
23	0.00	32.22	768	0	0	0	0	1	2	16	31	94	82	215	97	142	41	43	3	1	0	0	0	
24	0.00	36.72	768	0	0	0	0	1	3	20	30	112	76	181	108	126	58	44	9	0	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING ADDR. NUMBER = 1152542
SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -33	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	25.75	768	0	0	0	0	1	2	13	40	120	110	241	94	112	15	17	2	1	0	0	0	
26	0.00	32.30	768	0	0	0	0	0	6	29	36	125	97	217	81	127	23	23	4	0	0	0	0	
27	0.00	33.97	768	0	0	0	0	0	0	23	21	111	93	195	73	154	52	40	5	1	0	0	0	
28	0.00	34.78	768	0	0	0	0	0	8	28	33	104	89	249	93	106	31	28	2	1	1	0	0	
29	0.00	31.08	768	0	0	0	0	0	2	18	19	104	74	219	110	136	44	34	8	0	0	0	0	
30	0.00	33.08	768	0	0	0	0	1	2	13	30	109	88	151	98	155	40	34	5	1	1	0	0	
31	0.00	31.77	768	0	0	0	0	3	4	17	46	122	122	190	102	97	39	25	0	1	0	0	0	
32	0.00	33.79	768	0	0	0	0	3	5	23	49	138	100	167	88	139	34	19	3	0	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING SAMPLE NUMBER = 1152542

SCORE = 50.52

SAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	19.94	768	0	0	0	0	0	1	3	8	92	83	271	111	151	30	17	1	0	0	0	0	
34	0.00	44.25	768	0	0	0	0	5	9	23	26	96	94	172	104	132	41	44	10	9	3	0	0	
35	0.00	43.68	768	0	0	0	1	8	11	26	46	132	88	175	90	114	35	25	10	6	0	1	0	
36	0.00	43.57	768	0	0	0	0	6	3	28	33	99	79	178	103	131	38	51	9	7	3	0	0	
37	0.00	36.36	768	0	0	0	0	5	8	25	38	129	90	206	93	107	28	35	1	3	0	0	0	
38	0.00	42.48	768	0	0	0	1	5	7	38	39	122	91	205	74	108	29	36	5	7	1	0	0	
39	0.00	37.86	768	0	0	0	0	4	4	23	26	95	77	262	92	164	30	37	9	2	3	0	0	
40	0.00	43.59	768	0	0	0	1	3	3	31	28	107	74	190	85	133	44	50	11	8	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING SAMPLE NUMBER = 1152542

SCORE = 50.52

SAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	35.60	768	0	0	0	0	1	8	36	28	121	102	211	75	127	22	32	2	2	1	0	0	
42	0.00	36.73	768	0	0	0	1	1	4	42	36	116	94	215	77	116	31	27	7	1	0	0	0	
43	0.00	38.56	768	0	0	0	0	1	4	18	27	117	87	172	99	160	41	43	8	6	0	0	0	
44	0.00	31.34	768	0	0	0	0	0	1	33	33	128	109	244	85	121	26	24	4	0	0	0	0	
45	0.00	36.45	768	0	0	0	0	3	11	10	32	101	69	214	89	142	43	38	9	6	1	0	0	
46	0.00	36.64	768	0	0	0	0	0	3	30	29	81	77	213	100	141	41	41	11	1	0	0	0	
47	0.00	37.42	768	0	0	1	0	3	5	33	42	126	85	157	90	114	38	22	8	1	0	0	0	
48	0.00	40.77	768	0	0	0	0	0	1	33	33	90	82	186	99	109	67	63	4	1	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 1152582

SEQ #	SEQ CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
49		0.00	29.36	768	0	0	0	0	1	2	27	30	131	96	213	100	119	27	19	1	2	0	0	0
50		0.00	42.62	768	0	0	0	2	4	6	41	40	111	89	213	85	95	39	30	5	7	0	1	0
51		0.00	42.39	768	0	0	0	1	4	5	25	28	100	73	198	98	130	46	42	9	7	1	1	0
52		0.00	36.33	768	0	0	0	0	2	2	30	35	139	107	188	81	118	26	32	8	0	0	0	0
53		0.00	31.36	768	0	0	0	0	0	2	17	22	105	87	218	85	151	50	39	1	1	0	0	0
54		0.00	33.43	768	0	0	0	0	1	2	17	24	104	93	188	98	160	38	33	7	3	0	0	0
55		0.00	32.88	768	0	0	0	0	0	6	20	35	146	85	193	98	126	32	20	1	2	0	0	0
56		0.00	37.70	768	0	0	0	1	0	9	32	37	139	79	193	92	120	31	29	1	5	0	0	0

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 1152582

SEQ #	SEQ CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57		0.00	35.08	768	0	0	0	0	3	4	19	22	93	88	225	83	144	37	37	9	4	0	0	0
58		0.00	41.52	768	0	0	0	0	1	7	29	24	98	93	183	79	149	47	40	8	9	1	0	0
59		0.00	41.06	768	0	0	0	1	3	9	33	47	122	88	188	68	121	29	31	6	2	0	0	0
60		0.00	39.32	768	0	0	0	0	1	7	28	14	111	79	211	84	144	45	36	11	7	0	0	0
61		0.00	33.06	768	0	0	0	0	2	3	31	42	110	97	229	90	105	30	25	3	0	1	0	0
62		0.00	44.68	768	0	0	0	1	11	6	37	41	126	67	211	85	115	31	33	10	3	1	0	0
63		0.00	36.85	768	0	0	0	0	0	3	26	22	110	83	188	103	138	37	48	5	5	0	0	0
64		0.00	36.85	768	0	0	0	0	0	3	26	22	110	83	188	103	138	37	48	5	5	0	0	0

2. CORRELATION VALUES FOR INPUT SEQ

STARTING VALUE NUMBER =5815522

SCORE = SAC CODE	MEAN 50.52	VARIANCE	TOTAL	HISTOGRAM =3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	50.00	52.33	768	0	0	0	0	0	17	54	89	127	72	134	77	125	41	64	8	0	0	0	0	
2	50.00	62.30	768	0	0	0	3	10	17	57	36	106	75	172	89	104	36	57	9	14	2	1	0	
3	50.00	62.65	768	0	0	0	2	13	7	50	30	92	61	180	79	110	40	62	22	15	3	2	0	
4	50.00	63.99	768	0	0	0	2	14	14	59	45	111	69	155	89	107	42	50	12	18	1	0	0	
5	50.00	56.33	768	0	0	1	0	7	12	40	25	105	72	180	89	133	69	44	15	16	2	1	0	
6	50.00	65.19	768	0	0	0	1	9	14	47	41	97	61	150	75	117	43	68	26	18	5	0	0	
7	50.00	57.35	768	0	0	1	3	12	15	40	40	112	83	160	77	124	39	36	11	13	0	2	0	
8	50.00	38.38	768	0	0	0	1	4	5	34	25	121	98	199	89	124	25	34	4	4	1	0	0	

2. CORRELATION VALUES FOR INPUT SET

STARTING VALUE NUMBER =5815522

SCORE = SAC CODE	MEAN 50.52	VARIANCE	TOTAL	HISTOGRAM =3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
9	50.00	37.09	768	0	0	0	0	0	7	20	21	112	66	213	107	127	37	43	7	7	1	0	0	
10	50.00	50.69	768	0	0	0	0	11	5	38	26	95	76	172	98	130	46	42	9	18	1	1	0	
11	50.00	42.89	768	0	0	0	1	5	4	40	39	121	75	248	80	109	33	38	11	4	0	0	0	
12	50.00	44.29	768	0	0	0	0	7	2	38	28	95	66	265	86	131	34	51	14	10	0	1	0	
13	50.00	36.85	768	0	0	0	0	3	7	31	30	123	99	195	98	112	30	31	4	5	0	0	0	
14	50.00	46.52	768	0	0	0	1	11	9	34	33	116	84	196	89	108	35	34	5	9	2	0	0	
15	50.00	37.94	768	0	0	0	0	1	5	28	23	96	81	247	91	138	44	44	8	4	0	0	0	
16	50.00	42.38	768	0	0	0	0	3	5	44	35	137	86	181	73	112	40	40	12	0	0	0	0	

CORRELATION VALUES FOR INPUT SEQ =
STARTING RANDOM NUMBER =-5815522

SCORE = 50.52 MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
17	50.00	37.56	768	0	0	0	0	1	2	21	35	104	86	196	78	148	39	98	6	4	0	0	0	
18	50.00	38.31	768	0	0	1	0	3	6	36	34	88	92	174	88	130	41	45	14	11	3	2	0	
19	50.00	44.71	768	0	0	1	3	6	11	41	29	132	73	183	97	102	33	41	7	7	1	1	0	
20	50.00	45.21	768	0	0	0	2	2	9	24	23	106	89	174	95	133	42	43	10	15	1	0	0	
21	50.00	58.52	768	0	0	1	3	10	14	46	48	121	74	152	76	109	39	52	8	14	1	0	0	
22	50.00	42.42	768	0	0	0	0	6	5	43	40	113	91	183	95	116	28	33	8	6	1	0	0	
23	50.00	55.24	768	0	0	0	0	7	15	36	30	95	71	173	83	137	39	45	19	15	2	1	0	
24	50.00	51.31	768	0	0	0	0	3	9	35	32	120	80	160	64	122	62	64	6	12	0	0	0	

CORRELATION VALUES FOR INPUT SEQ =
STARTING RANDOM NUMBER =-5815522

SCORE = 50.52 MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
25	50.00	33.59	768	0	0	0	0	1	3	30	35	126	113	211	72	115	33	31	3	0	0	0	0	
26	50.00	35.92	768	0	0	0	0	3	4	29	34	132	104	202	69	121	31	34	2	1	1	1	0	
27	50.00	36.21	768	0	0	0	0	4	4	20	19	107	68	210	108	138	39	44	2	4	1	0	0	
28	50.00	40.66	768	0	0	0	0	3	6	42	42	113	107	190	79	105	37	36	3	5	0	0	0	
29	50.00	37.21	768	0	0	0	0	0	2	24	28	117	87	160	115	147	42	47	5	4	0	0	0	
30	50.00	33.42	768	0	0	0	0	1	5	18	19	102	83	215	110	131	39	33	5	7	0	0	0	
31	50.00	36.40	768	0	0	0	0	0	7	38	35	134	100	154	92	144	30	28	5	1	0	0	0	
32	50.00	39.53	768	0	0	0	0	0	4	55	34	103	81	165	99	116	55	35	1	0	0	1	1	

CORRELATION VALUES FOR INPUT SEQ =
STARTING RANDOM NUMBER =5815522

SCORE = 50.52 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	36.21	768	0	0	0	0	1	4	18	27	122	70	179	100	139	53	44	7	4	0	0	0
34	0.00	33.54	768	0	0	0	0	1	2	16	26	107	83	195	91	165	35	38	8	1	0	0	0
35	0.00	33.49	768	0	0	0	0	1	6	27	31	136	95	202	78	135	31	29	3	1	0	0	0
36	0.00	37.73	768	0	0	0	0	2	2	28	26	101	72	199	103	136	39	51	6	2	0	1	0
37	0.00	35.65	768	0	0	0	0	2	8	29	34	127	99	198	91	126	23	24	4	3	0	0	0
38	0.00	40.81	768	0	0	0	1	4	4	40	35	132	94	182	79	113	39	38	6	1	0	1	0
39	0.00	37.77	768	0	0	0	1	4	2	19	27	107	71	201	101	144	38	37	11	4	0	1	0
40	0.00	47.28	768	0	0	0	0	5	8	24	36	120	72	146	99	127	56	56	10	9	0	0	0

CORRELATION VALUES FOR INPUT SEQ =
STARTING RANDOM NUMBER =5815522

SCORE = 50.52 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	41.58	768	0	0	0	0	9	8	33	33	131	83	192	95	109	36	26	6	7	0	0	0
42	0.00	35.32	768	0	0	0	0	1	5	29	42	138	89	190	82	128	36	26	1	1	0	0	1
43	0.00	39.03	768	0	0	0	0	0	2	29	26	114	83	177	90	138	47	50	11	0	1	0	0
44	0.00	38.29	768	0	0	0	0	3	5	46	28	139	75	149	109	97	43	30	2	2	0	0	0
45	0.00	42.53	768	0	0	0	0	4	3	30	25	105	84	184	88	136	48	41	11	9	0	0	0
46	0.00	35.05	768	0	0	0	0	0	0	20	31	114	75	195	95	141	44	43	8	2	0	0	0
47	0.00	39.33	768	0	0	0	0	3	4	36	44	136	83	187	79	119	34	39	2	2	0	0	0
48	0.00	45.90	768	0	0	0	2	7	8	31	32	80	71	189	83	146	51	63	3	2	0	0	0

CORRELATION VALUES FOR INPUT SEQ
STARTING RANDOM NUMBER =5815522

SCORE = MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM ±3	-27	±24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	1
49	0.00	52.62	768	0	0	0	0	8	16	49	35	113	83	173	77	112	33	48	10	11	0	0	-	
50	0.00	38.24	768	0	0	0	0	4	5	35	31	143	84	175	85	123	46	32	4	1	0	0		
51	0.00	32.62	768	0	0	0	0	0	4	20	31	113	87	171	95	150	44	41	7	5	0	0	0	
52	0.00	43.25	768	0	0	0	1	6	4	48	28	128	92	167	68	133	25	39	6	2	0	1	0	
53	0.00	35.68	768	0	0	0	0	1	5	25	24	96	69	214	107	141	34	40	6	5	0	1	0	
54	0.00	43.27	768	0	0	0	1	2	3	30	23	116	82	159	100	146	38	53	8	5	1	0	1	
55	0.00	37.51	768	0	0	0	0	8	5	27	30	119	116	141	82	132	33	27	4	4	0	0	-	
56	0.00	37.83	768	0	0	0	0	6	2	40	38	118	76	214	73	133	30	27	4	3	0	0	0	

CORRELATION VALUES FOR INPUT SEQ
STARTING RANDOM NUMBER =5815522

SCORE = MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM ±3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57	0.00	41.35	768	0	0	0	0	3	6	28	41	103	72	210	85	124	48	56	6	6	1	0	0	
58	0.00	49.90	768	0	0	0	0	3	7	36	35	102	77	176	76	128	43	60	13	11	1	0	0	
59	0.00	51.62	768	0	0	0	0	8	17	43	46	108	86	147	102	119	27	48	9	6	1	1	0	
60	0.00	47.59	768	0	0	0	0	1	0	33	32	104	80	180	93	138	52	37	9	9	0	0	0	
61	0.00	39.22	768	0	0	0	0	4	5	36	38	119	95	198	88	114	26	32	9	4	0	0	0	
62	0.00	41.50	768	0	0	1	0	3	3	38	50	124	81	162	88	122	35	30	7	4	0	0	0	
63	0.00	45.03	768	0	0	0	1	1	6	30	36	104	71	175	86	138	53	49	10	8	0	0	0	
64	0.00	45.03	768	0	0	0	1	1	6	30	36	104	71	175	86	138	53	49	10	8	0	0	0	

CORRELATION VALUES FOR INPUT SEQ

STARTING RANDOM NUMBER = 835993

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
HISTOGRAM																								
1	0.00	45.68	768	0	0	0	0	5	9	44	36	133	81	151	81	136	83	36	10	4	0	0	0	
2	0.00	48.40	768	0	0	0	0	7	8	38	42	136	80	155	83	144	38	44	8	5	0	0	0	
3	0.00	48.46	768	0	0	0	0	3	5	37	24	137	65	152	72	146	55	50	12	10	0	0	0	
4	0.00	36.93	768	0	0	0	0	1	2	33	42	116	89	209	74	120	44	33	3	2	0	1	1	
5	0.00	49.58	768	0	0	0	2	7	4	31	33	97	70	185	91	131	50	40	14	8	3	2	0	
6	0.00	36.91	768	0	0	0	0	1	0	19	33	110	77	197	111	124	50	44	4	1	0	0	0	
7	0.00	49.27	768	0	0	0	3	7	11	37	38	113	85	182	82	124	26	42	6	9	3	0	0	
8	0.00	52.89	768	0	0	0	2	10	9	69	44	109	68	140	64	121	47	57	14	14	0	0	0	

PHARMACEUTICAL VALUES FOR INPUT SET

STARTING RANDOM NUMBER = 3390

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
HISTOGRAM																								
9	0.00	47.31	768	0	0	0	1	3	4	31	29	121	73	170	78	132	45	44	10	4	0	1	0	
10	0.00	45.10	768	0	0	1	0	1	6	33	34	95	86	171	85	141	47	42	10	9	2	0	0	
11	0.00	46.32	768	0	0	0	0	5	16	36	34	131	70	168	77	115	46	35	10	5	0	0	0	
12	0.00	44.43	768	0	0	0	0	1	7	32	29	96	85	173	114	110	49	51	12	9	0	0	0	
13	0.00	47.21	768	0	0	0	1	4	9	45	35	128	82	178	65	121	46	43	6	4	1	0	0	
14	0.00	44.25	768	0	0	0	1	8	4	38	35	127	87	172	103	105	36	38	6	6	2	0	0	
15	0.00	45.72	768	0	0	0	0	3	5	33	30	112	76	164	85	144	52	41	13	9	1	0	0	
16	0.00	50.05	768	0	0	0	0	10	7	49	31	121	78	176	72	123	44	39	9	6	1	2	0	

CORRELATION VALUES FOR INPUT SET 5
STARTING RANDOM NUMBER = .3599C6

SCORE MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	50.00	52.17	768	0	0	0	1	3	9	36	43	103	73	143	95	132	43	59	13	14	1	0	0	
18	50.00	41.15	768	0	0	0	0	5	5	21	26	107	84	179	97	149	36	39	14	5	0	0	1	
19	50.00	40.55	768	0	0	1	0	6	5	32	32	110	94	199	94	114	44	23	8	5	1	0	0	
20	50.00	49.89	768	0	0	1	1	3	9	27	34	102	76	144	75	130	41	59	12	8	2	2	0	
21	50.00	52.31	768	0	0	0	0	7	10	53	36	125	82	163	71	133	43	44	17	3	1	0	0	
22	50.00	50.67	768	0	0	1	3	2	12	48	30	123	78	165	73	134	33	50	8	6	2	0	0	
23	50.00	54.96	768	0	0	0	2	5	6	35	42	119	65	141	77	133	54	59	20	9	0	1	0	
24	50.00	47.84	768	0	0	0	0	1	2	38	31	122	80	138	100	125	43	47	12	9	0	0	0	

CORRELATION VALUES FOR INPUT SET 6
STARTING RANDOM NUMBER = .3599C6

SCORE MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	50.00	63.71	767	0	0	4	4	15	9	38	33	113	69	190	79	101	32	42	20	10	6	2	0	
26	50.00	40.02	768	0	0	0	0	5	4	34	35	140	72	170	96	134	32	36	7	3	0	0	0	
27	50.00	37.72	768	0	0	0	0	0	4	23	24	119	77	188	94	134	48	45	7	5	0	0	0	
28	50.00	49.54	768	0	0	0	3	5	2	46	48	129	62	161	75	131	43	48	9	6	0	0	0	
29	50.00	45.47	768	0	0	0	0	1	7	38	26	102	81	169	86	139	46	57	9	5	2	0	0	
30	50.00	48.27	768	0	0	0	0	2	4	42	31	107	69	164	74	155	39	53	13	11	0	0	0	
31	50.00	43.98	768	0	0	0	0	3	7	34	49	112	84	163	93	111	41	37	11	3	0	0	0	
32	50.00	40.39	768	0	0	0	0	3	4	33	39	141	79	173	87	119	45	36	7	2	0	0	0	

2. CROSSCORRELATION VALUES FOR INPUT SEQ
STARTING RANDOM NUMBERS =-835993a

SCORE * MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
	50.52									HISTOGRAM														
33	0.00	69.49	768	0	0	0	2	13	13	48	39	98	61	151	82	122	51	59	21	21	6	1	0	
34	0.00	36.47	768	0	0	0	0	6	1	17	19	98	78	226	91	152	36	35	2	7	2	0	0	
35	0.00	33.91	768	0	0	0	1	4	2	24	29	132	89	220	86	128	25	24	4	4	1	0	0	
36	0.00	44.37	768	0	0	1	0	3	4	21	36	89	81	162	96	133	54	39	8	9	2	0	0	
37	0.00	41.97	768	0	0	0	0	3	9	37	40	131	84	160	94	130	33	39	5	3	0	0	0	
38	0.00	42.90	768	0	0	0	3	2	5	41	34	112	89	202	78	123	33	32	10	3	0	1	0	
39	0.00	39.72	768	0	0	0	0	0	5	21	26	123	84	169	83	155	39	35	12	6	0	0	0	
40	0.00	52.47	768	0	0	1	0	7	8	33	27	104	76	173	84	136	50	39	12	12	3	1	0	

2. CROSSCORRELATION VALUES FOR INPUT SEQ
STARTING RANDOM NUMBERS =-835993a

SCORE * MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
	50.52									HISTOGRAM														
41	0.00	54.96	768	0	0	0	1	4	14	54	32	137	64	153	83	123	50	51	16	5	1	0	0	
42	0.00	56.48	768	0	0	1	0	9	8	50	47	110	71	167	27	116	34	50	14	11	1	2	0	
43	0.00	60.87	768	0	0	1	1	11	9	43	37	105	56	142	81	146	49	54	10	20	3	0	0	
44	0.00	50.51	768	0	0	0	0	8	16	33	42	110	77	162	72	125	42	43	9	6	3	0	0	
45	0.00	58.43	768	0	0	0	0	9	8	29	53	119	63	134	87	134	48	77	18	8	0	1	0	
46	0.00	50.91	768	0	0	0	1	5	11	32	27	116	69	156	36	134	44	54	9	11	2	0	1	
47	0.00	57.00	768	0	0	0	2	8	6	54	57	98	72	173	70	116	44	43	11	14	4	0	0	
48	0.00	45.95	768	0	0	0	0	1	1	43	33	98	63	166	86	139	40	56	8	14	0	0	0	

2. CORRELATION VALUES FOR INPUT SET 5
STARTING RANDOM NUMBER = 835990a

SCORE = 50.52 VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
b3	0.00	42.79	768	0	0	0	0	4	7	40	49	124	74	167	80	126	36	43	7	1	0	0	0
b0	0.00	41.10	768	0	0	1	0	5	5	32	61	131	68	191	109	104	36	29	12	4	0	0	0
b1	0.00	40.98	768	0	0	0	1	0	7	25	21	111	86	169	79	159	50	35	1	13	0	1	0
b2	0.00	43.67	768	0	0	0	2	3	10	32	40	131	70	183	100	118	25	40	10	4	0	0	0
b3	0.00	42.84	768	0	0	0	0	4	13	24	25	106	85	173	75	144	41	53	14	8	0	1	0
b4	0.00	44.75	768	0	0	0	1	3	7	19	39	106	83	185	79	131	65	53	5	11	1	0	0
b5	0.00	49.37	768	0	0	0	1	8	8	46	46	114	68	167	96	125	32	39	9	8	1	0	0
b6	0.00	48.00	768	0	0	0	1	10	5	42	35	128	80	164	98	123	23	38	14	7	0	0	0

2. CORRELATION VALUES FOR INPUT SET 5
STARTING RANDOM NUMBER = 835990b

SCORE = 50.52 VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
b7	0.00	52.75	768	0	0	0	0	5	12	41	30	97	81	185	82	140	40	58	14	10	1	1	0
b8	0.00	51.33	768	0	0	0	0	4	10	35	18	130	79	148	92	127	38	60	9	14	1	3	0
b9	0.00	45.69	768	0	0	0	1	8	5	41	38	125	86	162	82	119	36	47	12	6	0	0	0
c0	0.00	61.60	768	0	0	1	0	6	10	43	37	113	72	167	74	112	52	66	16	12	3	3	1
c1	0.00	55.15	768	0	0	2	0	7	10	45	50	109	77	174	65	119	39	49	7	11	1	3	0
c2	0.00	56.95	768	0	0	3	2	7	12	36	33	137	68	180	63	112	40	48	12	13	0	2	0
c3	0.00	50.85	768	0	0	1	2	5	6	25	33	109	85	180	68	116	60	49	14	15	0	0	0
c4	0.00	50.85	768	0	0	1	2	5	6	25	33	109	85	180	68	116	60	49	14	15	0	0	0

STARTING RANDOM NUMBER = 2284630

SCORE = 50.52

TRAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	[illegible]	30.65	768	0	0	0	0	0	3	4	28	86	124	99	221	77	112	23	22	8	0	0	0	0
2	[illegible]	26.26	768	0	0	0	0	0	0	1	30	25	128	113	220	116	93	24	18	0	0	0	0	0
3	[illegible]	26.18	768	0	0	0	0	0	0	0	12	28	70	119	214	112	151	27	39	1	0	0	0	0
4	[illegible]	16.76	768	0	0	0	0	0	0	0	11	24	123	124	266	110	88	17	4	1	0	0	0	0
5	[illegible]	24.29	768	0	0	0	0	0	0	2	11	13	79	92	260	115	149	27	25	5	0	0	0	0
6	[illegible]	18.34	768	0	0	0	0	0	0	0	3	11	74	100	267	130	143	28	11	1	0	0	0	0
7	[illegible]	24.13	768	0	0	0	0	0	0	0	4	18	22	130	114	251	111	96	17	15	0	0	0	0
8	[illegible]	18.85	768	0	0	0	0	0	1	0	10	19	122	128	278	114	88	9	9	0	0	0	0	0

2. CORRELATION VALUES FOR TRIAL SET =

STARTING RANDOM NUMBER = 2284630

SCORE = 50.52

TRAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
9	[illegible]	27.25	768	0	0	0	0	0	0	4	20	121	96	166	95	174	47	24	1	0	0	0	0	0
10	[illegible]	22.15	768	0	0	0	0	0	0	12	14	83	86	258	115	154	23	21	2	0	0	0	0	0
11	[illegible]	22.78	768	0	0	0	0	0	1	17	19	136	122	249	113	82	20	9	0	0	0	0	0	0
12	[illegible]	24.94	768	0	0	0	0	0	0	9	15	78	79	270	116	160	21	20	0	0	0	0	0	0
13	[illegible]	25.60	768	0	0	0	0	0	0	19	33	101	98	220	96	134	17	10	0	0	0	0	0	0
14	[illegible]	21.59	768	0	0	0	0	0	1	19	17	135	111	274	95	88	14	14	0	0	0	0	0	0
15	[illegible]	23.26	768	0	0	0	0	0	0	5	16	74	103	249	131	142	27	20	1	0	0	0	0	0
16	[illegible]	24.58	768	0	0	0	0	0	1	20	35	102	105	259	82	77	34	13	0	0	0	0	0	0

2, CORRELATION VALUES FOR INPUT SET 4
STARTING RANDOM NUMBER = 228630

SCALE = 50.52

REF CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	17.68	768	0	0	0	0	0	0	4	4	82	91	267	146	139	23	11	1	0	0	0	0	
18	0.00	18.99	768	0	0	0	0	0	0	4	10	78	99	255	134	149	27	8	2	1	0	0	0	
19	0.00	17.07	768	0	0	0	0	0	0	3	20	106	123	267	107	86	11	5	0	0	0	0	0	
20	0.00	27.16	768	0	0	0	0	0	0	12	19	94	103	197	123	151	34	30	5	0	0	0	0	
21	0.00	19.74	768	0	0	0	0	0	0	17	19	129	129	270	98	82	16	7	1	0	0	0	0	
22	0.00	26.71	768	0	0	0	0	1	3	17	32	106	115	219	95	110	14	16	0	0	0	0	0	
23	0.00	20.55	768	0	0	0	0	0	2	9	15	72	99	247	155	122	37	14	0	1	0	0	0	
24	0.00	26.65	768	0	0	0	0	0	2	7	18	100	80	227	134	170	28	26	6	0	0	0	0	

2, CORRELATION VALUES FOR INPUT SET
STARTING RANDOM NUMBER = 228630

SCALE = 50.52

REF CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	24.86	768	0	0	0	0	0	2	20	26	132	103	249	110	102	18	13	3	0	0	0	0	
26	0.00	25.03	768	0	0	0	0	0	1	23	39	130	108	219	102	106	20	16	4	0	0	0	0	
27	0.00	27.62	768	0	0	0	0	0	1	12	20	94	97	232	97	138	41	34	1	1	0	0	0	
28	0.00	29.25	768	0	0	0	0	0	5	27	37	114	109	227	95	113	20	18	3	0	0	0	0	
29	0.00	30.42	768	0	0	0	0	0	0	14	23	110	86	211	92	159	32	37	2	2	0	0	0	
30	0.00	29.58	768	0	0	0	0	0	1	16	20	97	86	237	86	154	32	30	7	1	1	0	0	
31	0.00	30.91	768	0	0	0	0	1	2	31	36	101	101	196	93	121	18	24	4	0	0	0	0	
32	0.00	21.63	768	0	0	0	0	0	0	11	31	131	120	232	99	125	29	0	0	0	0	0	0	

2, CORRELATION VALUES FOR INPUT SEQ A
STARTING RANDOM NUMBER =+2286306
SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
33	50.52	23.77	768	0	0	0	0	0	0	10	9	105	89	221	121	158	37	14	3	1	0	0	0	
34	50.52	19.97	768	0	0	0	0	0	1	6	9	85	82	270	129	139	31	14	0	0	0	0	0	
35	50.52	18.92	768	0	0	0	0	0	0	11	23	128	122	274	100	95	7	8	0	0	0	0	0	
36	50.52	24.24	768	0	0	0	0	0	0	9	13	100	95	222	127	141	33	26	2	1	0	0	0	
37	50.52	20.89	768	0	0	0	0	0	0	14	25	134	117	265	100	104	12	4	1	0	0	0	0	
38	50.52	25.93	768	0	0	0	0	0	2	22	31	139	121	205	101	112	24	11	0	0	0	0	0	
39	50.52	21.72	768	0	0	0	0	0	0	6	13	98	81	240	125	159	28	17	1	0	0	0	0	
40	50.52	27.01	768	0	0	0	0	0	2	4	22	110	76	219	106	169	33	21	5	1	0	0	0	

2, CORRELATION VALUES FOR INPUT SEQ A
STARTING RANDOM NUMBER =+2286336
SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
41	50.52	24.47	768	0	0	0	0	1	2	14	29	150	102	220	103	121	13	11	2	0	0	0	0	
42	50.52	28.46	768	0	0	0	0	1	3	26	30	139	90	238	96	110	20	8	3	4	0	0	0	
43	50.52	27.39	768	0	0	0	0	0	1	15	11	98	101	217	117	132	39	34	3	0	0	0	0	
44	50.52	23.33	768	0	0	0	0	0	0	12	35	147	100	243	92	109	23	7	0	0	0	0	0	
45	50.52	22.59	768	0	0	0	0	0	0	8	16	88	52	245	116	150	32	16	5	0	0	0	0	
46	50.52	26.27	768	0	0	0	0	0	0	12	22	84	96	228	117	152	36	29	1	1	0	0	0	
47	50.52	24.57	768	0	0	0	0	1	1	23	33	123	96	263	98	95	22	11	2	0	0	0	0	
48	50.52	25.18	768	0	0	0	0	0	0	4	31	98	90	197	115	183	42	17	1	0	0	0	0	

2. CORRELATION VALUES FOR INPUT SET 5
STARTING RANDOM NUMBER = -228630

SCALE = 50.52

VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21-18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
49	2.00	25.63	768	0 0 0 0 1 2 26 16 140 104 259 44 98 19 18 0 1 0 0 0
50	2.00	27.29	768	0 0 0 0 1 1 30 27 129 108 231 49 110 23 19 0 0 0 0 0
51	2.00	22.73	768	0 0 0 0 0 0 13 25 93 81 243 105 136 30 20 1 1 0 0 0
52	2.00	28.69	768	0 0 0 0 3 4 29 26 129 92 243 43 111 29 19 0 0 0 0 0
53	2.00	26.77	768	0 0 0 0 0 1 14 15 95 85 241 107 141 24 27 7 0 1 0 0
54	2.00	29.00	768	0 0 0 0 1 1 16 15 99 88 237 99 135 40 28 7 2 0 0 0
55	2.00	27.56	768	0 0 0 1 1 7 23 24 119 113 246 100 93 23 17 0 1 0 0 0
56	2.00	27.02	768	0 0 0 0 2 2 30 33 112 108 237 99 106 29 9 1 0 0 0 0

2. CORRELATION VALUES FOR INPUT SET 6
STARTING RANDOM NUMBER = -228630

SCALE = 50.52

VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21-18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
57	2.00	25.05	768	0 0 0 0 0 1 12 12 93 91 236 111 153 31 25 2 1 0 0 0
58	2.00	27.50	768	0 0 0 0 0 1 17 18 86 85 244 120 126 31 35 2 3 0 0 0
59	2.00	28.04	768	0 0 0 0 0 2 26 33 120 112 247 70 110 26 19 1 0 0 0 0
60	2.00	21.53	768	0 0 0 0 0 0 5 9 109 94 241 141 146 32 21 0 0 0 0 0
61	2.00	28.65	768	0 0 0 0 2 2 22 42 133 96 216 91 130 21 12 1 0 0 0 0
62	2.00	25.73	768	0 0 0 0 0 4 23 32 113 119 246 103 94 14 17 3 0 0 0 0
63	2.00	27.95	768	0 0 0 0 0 1 17 16 101 76 233 105 146 43 27 3 0 0 0 1
64	2.00	27.95	768	0 0 0 0 0 1 17 16 101 76 233 105 146 43 27 3 0 0 0 1

2. CORRELATION VALUES FOR INPUT SET 7

STARTING RANDOM NUMBER = 27764.

SCORE MAT CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27
1	50.00	37.97	768	0	0	0	1	13	5	28	21	106	89	244	97	96	18	17	14	6	0	0
2	50.00	36.67	768	0	0	0	0	4	3	28	38	127	92	223	83	111	25	28	4	2	0	0
3	50.00	33.84	768	0	0	0	0	2	3	16	24	102	80	218	96	138	51	34	4	4	0	0
4	50.00	33.62	768	0	0	0	0	3	5	32	33	117	101	210	99	111	25	28	2	2	0	0
5	50.00	33.20	768	0	0	0	0	1	6	13	17	99	102	222	85	165	38	24	7	7	0	0
6	50.00	36.43	768	0	0	0	0	1	3	23	21	101	80	218	93	146	34	40	9	3	0	0
7	50.00	33.79	768	0	0	0	0	5	6	25	27	106	85	201	99	118	28	18	9	1	0	0
8	50.00	37.88	768	0	0	0	1	6	2	18	47	156	87	166	86	143	24	21	5	6	0	0

2. CORRELATION VALUES FOR INPUT SET 1
STARTING RANDOM NUMBER = 27763.

SCORE MAT CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
9	50.00	23.12	768	0	0	0	0	0	0	9	13	93	75	265	127	127	31	24	2	0	0	0	0
10	50.00	31.27	768	0	0	0	0	0	0	19	23	113	80	154	133	154	36	41	2	1	0	0	0
11	50.00	26.96	768	0	0	0	0	1	1	24	23	140	98	231	83	135	19	9	3	1	0	0	0
12	50.00	35.29	768	0	0	0	0	2	1	16	35	95	86	201	111	124	34	53	7	2	0	1	0
13	50.00	22.95	768	0	0	0	0	1	1	21	21	114	126	261	91	106	11	14	1	0	0	0	0
14	50.00	30.39	768	0	0	0	0	1	0	28	32	150	88	243	91	123	35	15	2	0	0	0	0
15	50.00	26.35	768	0	0	0	0	0	1	9	13	118	80	227	114	137	36	33	0	1	0	0	0
16	50.00	37.92	768	0	0	0	0	6	11	29	38	123	103	246	81	100	33	34	4	0	0	0	0

2. CORRELATION VALUES FOR INPUT SET 7
STARTING RANDOM NUMBER = .27763.

SCORE = 50.52

SET CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	36.35	768	0	0	0	0	0	4	21	22	115	77	192	98	138	55	34	7	5	0	0	0
18	0.00	39.24	768	0	0	0	0	6	3	18	31	96	91	199	90	141	31	44	12	6	0	0	0
19	0.00	38.44	768	0	0	0	1	3	12	23	37	124	86	222	49	107	28	23	6	7	0	0	0
20	0.00	38.18	768	0	0	0	0	3	4	19	29	109	83	190	85	139	57	35	10	5	0	0	0
21	0.00	35.03	768	0	0	0	0	2	7	34	39	117	95	213	74	127	34	19	6	1	0	0	0
22	0.00	43.98	768	0	0	1	0	1	10	45	41	132	79	173	80	120	46	29	6	4	1	0	0
23	0.00	41.33	768	0	0	0	1	2	1	35	27	92	86	163	98	132	48	49	9	5	0	0	0
24	0.00	36.54	768	0	0	0	0	0	0	29	27	116	91	158	100	142	53	46	6	0	0	0	0

2. CORRELATION VALUES FOR INPUT SET 7
STARTING RANDOM NUMBER = .27763.

SCORE = 50.52

SET CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	42.83	768	0	0	0	0	5	12	32	38	136	85	188	74	109	44	38	2	5	0	0	0
26	0.00	38.41	768	0	0	0	0	3	6	40	42	131	82	185	74	139	35	28	3	0	0	0	0
27	0.00	35.82	768	0	0	0	0	0	5	14	30	115	84	176	97	149	41	53	2	2	0	0	0
28	0.00	35.81	768	0	0	0	0	4	6	28	38	127	90	200	95	119	33	21	3	4	0	0	0
29	0.00	33.32	768	0	0	0	0	2	3	20	15	104	85	209	104	131	52	35	6	1	1	0	0
30	0.00	38.51	768	0	0	0	0	2	3	25	30	90	79	216	91	130	40	48	10	3	1	0	0
31	0.00	36.71	768	0	0	0	0	3	5	34	39	118	93	207	92	108	31	32	4	2	0	0	0
32	0.00	27.88	768	0	0	0	0	0	0	21	40	128	105	231	84	112	19	26	2	0	0	0	0

2, CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = 27763.

SCORE =	50.52										HISTOGRAM													
SEC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	50.00	43.32	768	0	0	0	0	1	2	26	40	125	70	164	74	135	62	59	6	4	0	0	0
34	50.00	37.05	768	0	0	0	0	0	0	25	29	121	76	184	73	153	57	43	7	0	0	0	0
35	50.00	36.79	768	0	0	0	0	0	3	35	48	129	98	166	92	128	36	35	1	0	0	0	0
36	50.00	33.57	768	0	0	1	0	1	2	19	25	93	87	211	97	145	39	42	3	2	1	0	0
37	50.00	42.21	768	0	0	0	0	7	7	40	36	128	81	189	81	127	31	31	8	2	0	0	0
38	50.00	33.31	768	0	0	0	2	0	5	28	32	128	90	224	87	113	32	23	2	1	1	0	0
39	50.00	39.76	768	0	0	0	0	1	2	32	26	103	87	183	68	137	51	45	10	3	0	0	0
40	50.00	36.17	768	0	0	0	0	2	2	18	35	98	76	212	78	146	44	50	7	0	0	0	0

2, CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = 27763.

SCORE =	50.52										HISTOGRAM													
SEC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	50.00	33.17	768	0	0	0	0	2	3	33	41	118	93	210	105	122	21	26	4	0	0	0	0
42	50.00	34.90	768	0	0	0	0	1	5	29	52	126	70	218	92	122	26	20	6	1	0	0	0
43	50.00	34.34	768	0	0	0	0	1	3	18	22	100	106	195	80	151	47	37	4	4	0	0	0
44	50.00	35.09	768	0	0	0	0	4	3	26	46	134	73	212	81	126	26	20	4	3	0	0	0
45	50.00	34.11	768	0	0	0	0	1	5	21	18	97	90	248	95	140	52	35	2	3	1	0	0
46	50.00	32.97	768	0	0	0	0	1	3	16	21	102	91	210	97	135	44	40	4	4	0	0	0
47	50.00	35.48	768	0	0	0	0	2	4	34	36	137	85	192	104	97	33	28	4	2	0	0	0
48	50.00	44.97	768	0	0	0	0	0	5	26	36	104	79	195	77	135	52	34	3	18	2	2	0

2, CORRELATION VALUES FOR INPUT SEQ /
STARTING RANDOM NUMBER = 27763.

SCORE = 50.52

VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
49	50.00	30.98	768	0	0	0	0	3	1	36	35	140	85	215	74	126	31	27	5	0	0	0	0	
50	50.00	32.84	768	0	0	0	0	5	2	35	40	136	92	184	80	132	28	28	5	1	0	0	0	
51	50.00	36.11	768	0	0	0	0	0	3	28	27	104	84	191	86	146	37	52	4	6	0	0	0	
52	50.00	28.23	768	0	0	0	0	1	4	17	40	137	91	215	98	123	29	13	0	0	0	0	0	
53	50.00	36.57	768	0	0	0	0	1	2	23	27	126	79	173	76	157	49	47	6	1	0	1	0	
54	50.00	27.59	768	0	0	0	0	0	0	13	22	96	83	231	112	142	34	28	7	0	0	0	0	
55	50.00	36.22	768	0	0	0	0	1	5	39	35	134	81	212	85	121	32	27	3	3	0	0	0	
56	50.00	34.14	768	0	0	0	0	3	2	37	30	127	90	235	78	108	21	33	3	1	0	0	0	

2, CORRELATION VALUES FOR INPUT SEQ /
STARTING RANDOM NUMBER = 27763.

SCORE = 50.52

VAR CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57	50.00	31.50	768	0	0	0	0	2	3	9	35	92	83	215	108	159	31	35	3	2	0	1	0	
58	50.00	36.15	768	0	0	0	2	2	1	19	24	106	76	209	97	142	41	33	11	5	0	0	0	
59	50.00	34.90	768	0	0	0	0	5	8	26	35	127	96	208	78	124	29	24	3	4	0	1	0	
60	50.00	32.47	768	0	0	0	1	1	0	13	30	112	54	215	116	147	32	40	5	2	0	0	0	
61	50.00	31.42	768	0	0	0	1	2	2	31	25	130	106	219	72	127	31	17	4	0	1	0	0	
62	50.00	36.44	768	0	0	0	1	2	2	36	35	135	93	188	84	131	31	23	3	3	0	1	0	
63	50.00	36.19	768	0	0	0	0	4	3	17	29	100	82	192	115	135	41	37	10	1	1	0	1	
64	50.00	36.19	768	0	0	0	0	4	3	17	29	100	82	192	115	135	41	37	10	1	1	0	1	

2, CORRELATION VALUES FOR INPUT SEQ

STARTING RANDOM NUMBER = 2160+1+

SCORE = 50.52				HISTOGRAM																				
VAR CODE	MEAN	VARIANCE	TOTAL	+3	+27	+24	+21	+18	+15	+12	+9	+6	+3	0	3	6	9	12	15	18	21	24	27	30
1	50.50	21.36	768	0	0	0	0	0	0	0	1	88	144	216	80	31	0	0	0	0	0	0	0	0
2	50.50	21.34	768	0	0	0	0	0	0	17	37	138	121	233	115	84	17	4	0	0	0	0	0	0
3	50.50	21.76	768	0	0	0	0	0	0	5	17	74	113	231	119	151	36	22	0	0	0	0	0	0
4	50.50	15.97	768	0	0	0	0	0	0	9	17	122	139	311	102	65	7	6	0	0	0	0	0	0
5	50.50	16.76	768	0	0	0	0	0	0	0	5	78	115	252	127	154	33	4	0	0	0	0	0	0
6	50.50	16.18	768	0	0	0	0	0	0	5	8	98	98	256	144	123	25	11	0	0	0	0	0	0
7	50.50	16.97	768	0	0	0	0	0	0	4	28	148	121	265	115	88	9	0	0	0	0	0	0	0
8	50.50	16.73	768	0	0	0	0	0	0	9	32	114	115	315	82	96	4	1	0	0	0	0	0	0

2, CORRELATION VALUES FOR INPUT SET

STARTING RANDOM NUMBER = 2160+1+

SCORE = 50.52				HISTOGRAM																				
VAR CODE	MEAN	VARIANCE	TOTAL	+3	+27	+24	+21	+18	+15	+12	+9	+6	+3	0	3	6	9	12	15	18	21	24	27	30
9	50.50	22.69	768	0	0	0	0	0	0	9	13	102	63	273	119	132	34	23	0	0	0	0	0	0
10	50.50	19.25	768	0	0	0	0	0	0	4	14	80	91	271	124	145	22	17	0	0	0	0	0	0
11	50.50	20.24	768	0	0	0	0	0	0	21	22	123	134	266	93	79	18	12	0	0	0	0	0	0
12	50.50	15.56	768	0	0	0	0	0	0	3	9	68	84	348	128	141	16	11	0	0	0	0	0	0
13	50.50	23.41	768	0	0	0	0	0	1	20	26	132	114	281	82	101	16	15	0	0	0	0	0	0
14	50.50	19.45	768	0	0	0	0	0	0	12	24	135	125	268	94	88	16	6	0	0	0	0	0	0
15	50.50	22.49	768	0	0	0	0	0	1	9	15	86	80	283	135	143	19	25	2	0	0	0	0	0
16	50.50	19.55	768	0	0	0	0	0	0	2	12	128	127	381	85	84	6	3	0	0	0	0	0	0

2, CORRELATION VALUES FOR INPUT SET
STARTING RANDOM NUMBER = 216041.

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	14.18	768	0	0	0	0	0	0	6	9	71	100	268	121	158	23	12	0	0	0	0	0	0
18	0.00	25.81	768	0	0	0	0	0	2	8	16	109	101	205	95	175	37	18	4	0	0	0	0	0
19	0.00	25.98	768	0	0	0	0	0	5	18	28	156	98	216	105	111	17	12	2	0	0	0	0	0
20	0.00	20.33	768	0	0	0	0	0	1	6	15	72	90	278	125	129	35	16	0	1	0	0	0	0
21	0.00	18.80	768	0	0	0	0	0	2	6	33	119	131	267	101	93	13	3	0	0	0	0	0	0
22	0.00	20.60	768	0	0	0	0	1	1	15	28	126	96	302	92	80	21	6	0	0	0	0	0	0
23	0.00	22.66	768	0	0	0	0	0	0	9	9	93	88	260	104	150	32	19	4	0	0	0	0	0
24	0.00	17.39	768	0	0	0	0	0	0	2	12	78	93	258	134	161	20	10	0	0	0	0	0	0

2, CORRELATION VALUES FOR INPUT SET
STARTING RANDOM NUMBER = 216041.

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -3	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	17.69	768	0	0	0	0	0	0	10	20	129	139	245	61	89	11	4	0	0	0	0	0	0
26	0.00	13.14	768	0	0	0	0	0	0	4	9	119	160	316	42	73	4	1	0	0	0	0	0	0
27	0.00	11.94	768	0	0	0	0	0	0	0	2	58	79	322	164	131	11	1	0	0	0	0	0	0
28	0.00	16.03	768	0	0	0	0	0	0	10	16	104	142	254	101	90	6	5	0	0	0	0	0	0
29	0.00	16.26	768	0	0	0	0	0	0	2	6	76	69	293	160	129	25	8	0	0	0	0	0	0
30	0.00	19.73	768	0	0	0	0	0	0	2	13	92	88	254	123	157	25	14	0	0	0	0	0	0
31	0.00	16.34	768	0	0	0	0	0	0	7	21	128	149	278	49	89	4	3	0	0	0	0	0	0
32	0.00	14.89	768	0	0	0	0	0	0	0	23	144	135	289	42	93	2	0	0	0	0	0	0	0

2. CORRELATION VALUES FOR INPUT SEQ.
STARTING RANDOM NUMBER = 21601+

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	17.56	768	0	0	0	0	0	0	7	2	74	107	262	134	156	14	9	3	0	0	0	0	
34	0.00	22.33	768	0	0	0	0	0	0	15	15	93	89	270	136	130	21	26	3	0	0	0	0	
35	0.00	22.41	768	0	0	0	0	0	2	25	16	125	125	275	95	72	17	16	0	0	0	0	0	
36	0.00	17.37	768	0	0	0	0	0	1	2	7	73	93	272	148	142	15	12	3	0	0	0	0	
37	0.00	18.72	768	0	0	0	0	0	1	18	18	119	125	297	67	81	17	5	0	0	0	0	0	
38	0.00	16.60	768	0	0	0	0	0	3	6	16	122	142	293	102	71	8	4	1	0	0	0	0	
39	0.00	16.74	768	0	0	0	0	0	0	4	16	71	88	266	130	130	22	21	0	0	0	0	0	
40	0.00	16.39	768	0	0	0	0	0	0	3	8	66	97	291	146	125	14	17	1	0	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ.
STARTING RANDOM NUMBER = 21601+

SCORE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	17.36	768	0	0	0	0	0	0	7	23	133	108	292	110	92	8	5	0	0	0	0	0	
42	0.00	14.09	768	0	0	0	0	0	1	5	15	123	133	309	116	52	6	3	0	0	0	0	0	
43	0.00	15.61	768	0	0	0	0	0	0	4	6	52	107	301	128	136	23	11	0	0	0	0	0	
44	0.00	16.12	768	0	0	0	0	0	3	4	19	137	111	299	115	69	5	6	0	0	0	0	0	
45	0.00	17.49	768	0	0	0	0	0	1	4	8	72	98	279	134	137	19	16	0	0	0	0	0	
46	0.00	14.98	768	0	0	0	0	0	1	2	4	53	108	294	142	143	11	9	1	0	0	0	0	
47	0.00	16.17	768	0	0	0	0	0	1	8	18	126	121	256	123	60	8	7	0	0	0	0	0	
48	0.00	21.75	768	0	0	0	0	0	0	7	20	68	125	282	121	155	38	19	0	0	0	0	0	

2. CORRELATION VALUES FOR INPUT SET
STARTING RANDOM NUMBER = 2160416

SCALE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
49	0.00	15.47	768	0	0	0	0	0	0	10	15	125	121	316	94	74	13	0	0	0	0	0	0	
50	0.00	19.43	768	0	0	0	0	0	2	10	29	121	117	300	90	79	12	8	0	0	0	0	0	
51	0.00	19.82	768	0	0	0	0	0	0	7	13	76	80	269	129	128	27	17	2	0	0	0	0	
52	0.00	14.30	768	0	0	0	0	0	0	6	18	120	139	301	94	81	6	3	0	0	0	0	0	
53	0.00	13.98	768	0	0	0	0	0	0	0	5	64	98	298	144	138	15	6	0	0	0	0	0	
54	0.00	14.34	768	0	0	0	0	0	0	3	8	58	87	313	149	131	14	10	0	0	0	0	0	
55	0.00	14.56	768	0	0	0	0	0	1	5	13	129	131	313	98	71	6	1	0	0	0	0	0	
56	0.00	16.26	768	0	0	0	0	0	1	2	15	155	107	303	82	91	6	4	0	0	0	0	0	

2. CORRELATION VALUES FOR INPUT SET
STARTING RANDOM NUMBER = 2150416

SCALE = 50.52

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57	0.00	15.77	768	0	0	0	0	0	0	3	6	73	91	295	140	140	23	9	0	0	0	0	0	
58	0.00	18.20	768	0	0	0	0	0	0	2	5	90	101	252	122	159	28	9	0	0	0	0	0	
59	0.00	17.67	768	0	0	0	0	0	0	5	30	138	122	260	113	89	8	3	0	0	0	0	0	
60	0.00	16.66	768	0	0	0	0	0	0	5	5	76	92	280	117	164	23	6	0	0	0	0	0	
61	0.00	15.21	768	0	0	0	0	0	0	7	21	123	134	300	102	72	6	3	0	0	0	0	0	
62	0.00	19.11	768	0	0	0	0	0	0	11	21	154	103	271	98	95	13	2	0	0	0	0	0	
63	0.00	17.32	768	0	0	0	0	0	0	3	6	78	93	292	117	141	23	15	0	0	0	0	0	
64	0.00	17.52	768	0	0	0	0	0	0	3	6	78	93	292	117	141	23	15	0	0	0	0	0	

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APPENDIX 42

RESULTS OF EXPERIMENT TWO
IN ABSOLUTE COMPUTATION TECHNIQUES

STARTING RANDOM NUMBER = 83099B2

SCORE = 100.00 MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
1	0.00	44.61	768	0	0	0	0	8	7	22	25	111	73	189	93	142	35	43	6	10	3	1	0	
2	0.00	56.22	768	0	0	0	0	8	9	28	49	121	74	118	76	156	47	53	8	20	0	0	0	
3	0.00	55.71	768	0	0	0	0	8	12	25	40	128	83	127	55	145	63	53	12	16	1	0	0	
4	0.00	55.09	768	0	0	1	4	7	10	28	30	105	74	168	90	141	34	43	13	14	2	4	0	
5	0.00	68.55	768	0	0	2	2	15	14	43	30	82	64	181	82	111	41	51	19	19	9	3	0	
6	0.00	54.73	768	0	0	1	4	6	9	33	28	97	80	171	76	138	52	39	14	16	1	3	0	
7	0.00	68.65	768	0	0	0	2	19	12	45	25	93	66	172	82	114	34	55	15	24	5	5	0	
8	0.00	69.68	768	0	0	0	1	7	6	33	38	97	72	185	82	130	35	56	14	11	0	1	0	

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 83099B2

SCORE = 100.00 MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
9	0.00	83.37	767	1	0	4	6	13	20	44	29	92	54	160	75	109	43	60	15	25	8	8	1	
10	0.00	68.47	768	0	0	0	4	14	10	41	32	103	71	154	58	133	41	54	24	17	7	2	1	
11	0.00	75.75	768	0	0	0	1	17	21	48	40	110	51	122	83	98	50	78	21	17	8	3	0	
12	0.00	62.87	768	0	0	3	0	7	3	54	33	107	66	151	65	124	58	56	21	17	1	2	0	
13	0.00	84.06	767	0	1	5	5	22	13	37	43	84	57	141	85	122	39	55	20	18	11	8	1	
14	0.00	68.12	768	0	0	0	3	13	14	44	42	87	70	145	78	137	30	58	19	21	2	5	0	
15	0.00	78.52	768	0	0	2	3	14	13	60	30	103	76	117	56	114	53	72	19	26	7	3	0	
16	0.00	43.75	768	0	0	0	0	1	3	29	41	118	91	144	86	141	56	40	12	5	1	0	0	

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 83699B2

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	81.02	768	0	0	0	2	14	15	66	61	103	51	127	61	98	58	80	27	19	7	3	0	
18	0.00	62.77	768	0	0	3	2	7	15	42	27	97	65	171	79	116	47	60	13	15	6	3	0	
19	0.00	63.34	768	0	0	2	2	8	9	47	38	97	61	167	67	139	42	48	15	18	3	4	0	
20	0.00	51.74	768	0	0	0	2	5	7	38	29	100	85	168	78	129	52	50	9	11	4	1	0	
21	0.00	56.94	767	0	0	0	2	6	12	34	42	99	71	157	99	127	42	45	11	16	2	2	0	
22	0.00	53.44	768	0	0	0	0	10	9	33	33	111	67	167	86	136	35	47	14	19	0	1	0	
23	0.00	52.45	768	0	0	2	0	2	8	26	41	121	79	159	71	118	55	61	9	13	1	1	1	
24	0.00	69.47	768	0	0	3	4	11	15	34	30	106	60	169	71	127	39	47	20	19	4	7	0	

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 83699B2

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	85.01	767	0	1	6	2	13	13	62	31	102	63	117	67	117	49	72	15	22	7	7	1	
26	0.00	67.82	768	0	0	2	1	11	12	45	40	88	81	139	70	121	52	62	21	16	3	2	2	
27	0.00	71.54	768	0	0	1	1	12	15	47	38	114	47	138	78	111	58	61	21	17	3	6	0	
28	0.00	57.67	768	0	0	0	0	6	7	39	40	101	78	162	73	113	51	61	20	13	3	1	0	
29	0.00	64.76	768	0	0	3	2	12	8	38	24	116	62	162	77	121	41	61	12	19	5	4	1	
30	0.00	57.35	768	0	0	0	0	4	12	53	37	89	62	160	93	118	45	64	19	9	2	1	0	
31	0.00	63.11	768	0	0	4	2	10	10	38	22	114	71	152	69	135	49	52	16	19	3	2	0	
32	0.00	48.38	768	0	0	0	0	9	9	36	27	115	80	188	71	128	39	49	10	6	1	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8369982

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
33	0.00	69.04	768	0	1	1	3	12	14	34	37	111	62	142	75	125	49	52	22	21	4	1	1	
34	0.00	50.54	768	0	1	1	0	4	6	28	42	105	67	168	65	134	52	57	4	8	1	3	1	
35	0.00	50.00	768	0	0	1	0	6	5	28	37	110	80	160	76	145	40	57	12	7	3	1	1	
36	0.00	70.71	768	0	0	3	2	8	15	45	61	101	65	131	75	125	52	41	25	11	3	0	5	
37	0.00	77.66	767	0	0	2	6	16	10	48	45	82	73	145	67	104	53	45	19	21	5	5	1	
38	0.00	73.66	768	2	0	3	0	9	12	55	27	105	62	149	70	118	45	43	17	22	4	3	0	
39	0.00	75.00	768	0	0	1	4	17	11	41	36	104	61	149	68	110	49	45	23	15	6	6	2	
40	0.00	57.10	768	0	0	0	1	8	10	34	42	104	69	144	80	136	48	42	11	14	2	1	0	

2. CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8369982

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
41	0.00	66.47	768	0	0	3	0	10	13	46	32	114	58	146	60	135	44	45	16	23	2	1	0	
42	0.00	58.68	768	0	0	0	0	9	10	43	32	100	67	170	68	131	48	54	13	18	2	3	0	
43	0.00	61.76	767	0	0	0	1	12	6	39	32	109	70	168	72	117	36	48	12	22	2	1	0	
44	0.00	50.33	768	0	0	0	0	7	9	32	25	110	71	185	74	129	54	47	8	15	1	1	0	
45	0.00	58.78	768	0	0	0	2	7	12	41	39	98	54	171	70	142	44	55	16	10	5	2	0	
46	0.00	56.92	767	0	0	0	1	5	8	42	38	109	74	149	77	122	44	48	14	14	2	0	0	
47	0.00	58.99	768	0	0	2	0	6	8	42	34	113	65	157	70	136	41	42	11	16	2	2	1	
48	0.00	70.44	768	0	2	2	2	14	16	45	39	86	62	159	61	127	40	48	24	20	1	0	0	

2, CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8349982

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30	HISTOGRAM
49	0.00	67.97	768	0	0	0	3	7	11	41	46	78	71	154	63	105	58	73	13	19	4	2	0		
50	0.00	72.56	766	1	2	1	1	13	8	47	33	98	73	164	65	108	48	58	14	24	4	3	1		
51	0.00	73.79	766	2	0	2	3	12	5	49	33	98	77	150	65	116	46	60	24	16	4	3	1		
52	0.00	58.14	768	0	1	1	1	9	11	41	24	95	82	172	70	124	46	41	14	12	2	2	0		
53	0.00	73.27	768	0	0	3	6	12	8	33	45	118	59	133	73	117	50	53	28	17	9	4	0		
54	0.00	58.35	767	0	0	3	1	7	8	41	35	99	55	175	44	127	45	55	15	15	1	1	0		
55	0.00	68.77	768	0	1	2	1	13	11	43	45	87	74	168	69	129	39	60	24	14	2	5	1		
56	0.00	64.27	768	0	1	3	2	10	11	43	20	103	76	155	82	124	39	57	14	20	5	1	0		

2, CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 8349982

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30	HISTOGRAM
57	0.00	62.68	768	0	0	0	1	11	12	43	39	95	66	154	78	123	50	51	21	20	1	2	1		
58	0.00	61.32	768	0	0	1	0	10	10	35	40	101	77	159	70	113	49	69	13	14	3	3	1		
59	0.00	60.04	768	0	0	0	3	7	9	39	40	99	78	157	82	111	41	64	16	17	4	1	0		
60	0.00	70.84	767	0	0	1	4	7	10	58	37	90	73	142	67	135	41	57	13	20	4	4	0		
61	0.00	63.71	768	0	0	0	5	9	11	46	45	75	60	185	71	111	48	65	14	17	4	2	0		
62	0.00	59.98	767	0	1	0	3	5	9	46	35	99	68	158	88	121	45	56	15	12	3	3	0		
63	0.00	59.66	768	1	0	0	1	12	7	41	26	105	70	167	73	116	56	55	19	15	3	1	0		
64	0.00	59.66	768	1	0	0	1	12	7	41	26	105	70	167	73	116	56	55	19	15	3	1	0		

2, CORRELATION VALUES FOR INPUT SEQ 3

STARTING RANDOM NUMBER = 1152542

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	0.00	78.74	768	0	0	0	2	25	16	49	33	100	66	129	68	115	43	58	24	33	3	2	0
2	0.00	65.18	765	2	1	5	3	5	7	25	38	122	75	133	81	142	60	39	10	5	5	5	2
3	0.00	66.30	765	2	1	4	5	7	3	21	28	128	81	142	67	136	70	44	6	8	5	4	1
4	0.00	67.69	768	0	0	3	5	6	12	36	46	115	58	151	65	129	66	54	19	10	9	3	1
5	0.00	65.13	768	0	0	3	1	7	17	35	30	115	66	148	66	139	43	55	17	17	4	3	0
6	0.00	67.40	768	0	0	2	3	12	10	33	36	112	71	152	59	117	60	67	8	15	4	4	0
7	0.00	66.23	767	0	0	1	4	10	8	35	36	117	71	141	80	130	34	58	15	14	5	4	2
8	0.00	59.15	768	0	0	0	1	9	13	42	47	92	57	166	71	129	56	56	15	9	5	0	0

2. CORRELATION VALUES FOR INPUT SEC 3

STARTING RANDOM NUMBER = 1152542

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
9	0.00	63.03	768	0	0	0	3	11	8	39	38	97	67	149	75	121	44	51	20	18	3	3	1
10	0.00	74.32	768	0	0	1	2	16	7	54	43	101	55	141	62	117	51	45	27	17	2	6	1
11	0.00	70.15	768	0	0	1	0	14	15	49	39	109	63	139	60	125	48	63	14	19	8	0	0
12	0.00	81.99	767	0	2	0	0	15	15	63	46	92	59	122	71	104	34	46	30	19	5	4	0
13	0.00	59.85	768	0	0	0	1	14	7	46	26	99	88	144	76	109	49	53	13	20	1	1	1
14	0.00	70.69	768	0	0	1	3	14	11	45	45	112	63	134	56	121	57	63	25	11	4	3	0
15	0.00	66.41	767	0	0	2	0	10	12	44	39	106	62	149	75	113	57	52	21	19	5	1	0
16	0.00	68.72	768	0	0	2	5	13	10	36	28	107	81	166	69	113	49	43	14	16	5	11	0

CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 11525a2

SCORE = MAC CODE	100.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	83.46	768	0	1	1	1	22	21	42	47	92	45	144	69	102	50	70	16	36	6	3	2	
18	0.00	68.33	768	0	0	3	0	12	11	43	37	111	50	156	71	120	44	58	21	25	5	1	0	
19	0.00	73.16	768	0	1	2	6	13	14	45	27	108	66	138	65	130	50	57	19	15	8	3	1	
20	0.00	60.00	768	0	0	0	1	5	16	41	38	98	60	158	82	129	83	45	18	10	2	3	0	
21	0.00	65.60	768	0	0	3	0	12	13	36	41	109	70	129	70	143	41	68	9	16	6	2	0	
22	0.00	68.30	768	0	0	1	2	12	7	56	37	89	75	150	76	113	41	63	13	24	6	9	0	
23	0.00	70.87	768	0	0	1	4	12	11	46	36	107	66	140	60	124	52	67	13	23	3	8	1	
24	0.00	51.12	768	0	0	0	0	4	8	39	23	117	65	166	74	119	53	69	16	5	0	0	0	

CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 11525a2

SCORE = MAC CODE	100.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	94.06	764	2	1	9	9	18	8	38	33	105	56	156	65	105	53	48	13	24	7	12	2	
26	0.00	51.20	768	0	0	0	0	5	10	38	33	107	78	171	77	123	47	55	13	8	2	1	0	
27	0.00	56.83	768	0	0	0	1	7	6	40	38	110	66	157	80	120	44	66	14	17	2	0	0	
28	0.00	66.77	768	0	0	1	3	4	14	53	33	105	69	156	69	108	55	59	18	14	3	6	0	
29	0.00	78.41	768	0	0	6	5	13	18	41	32	107	42	154	81	124	29	56	27	20	6	8	1	
30	0.00	52.31	768	0	0	0	1	7	6	33	35	104	75	168	84	123	49	57	10	13	1	2	0	
31	0.00	52.58	768	0	0	0	1	13	14	36	35	104	74	161	71	108	62	50	14	22	1	1	1	
32	0.00	52.33	768	0	0	0	0	5	13	33	24	112	83	179	69	99	47	70	19	5	0	0	0	

CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 11525a2

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	48.66	768	0	0	0	0	7	4	31	37	97	91	159	84	141	34	59	9	13	2	0	0	
34	0.00	57.14	768	0	0	1	0	8	7	39	40	107	73	159	72	129	36	62	18	13	4	0	0	
35	0.00	57.69	768	0	0	0	0	8	9	45	36	107	61	158	79	123	53	58	14	13	3	1	0	
36	0.00	55.70	768	0	0	1	0	10	5	35	37	112	61	168	81	127	44	56	13	15	2	1	0	
37	0.00	56.17	768	0	0	0	0	7	11	38	30	109	70	177	67	122	45	59	19	16	2	1	0	
38	0.00	57.25	768	0	0	0	0	7	10	44	29	121	49	167	74	119	57	66	11	8	3	3	0	
39	0.00	55.52	768	0	0	0	0	5	12	36	43	99	68	165	80	123	65	66	11	16	3	0	0	
40	0.00	56.31	768	0	0	0	4	6	10	40	19	117	70	160	89	125	63	57	10	15	0	3	0	

CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 11525a2

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	66.99	767	1	0	2	4	8	10	37	39	111	70	145	82	124	46	33	20	17	5	4	0	
42	0.00	62.47	768	0	0	1	0	13	8	42	39	111	64	155	60	134	51	51	19	17	3	0	0	
43	0.00	61.80	768	0	1	1	1	6	12	45	33	104	71	149	79	125	51	46	24	17	3	0	0	
44	0.00	60.02	768	0	0	2	2	7	11	46	30	106	75	150	74	126	44	66	18	9	3	1	0	
45	0.00	72.32	768	1	0	2	3	13	10	47	31	105	61	154	75	122	47	48	14	21	9	2	3	
46	0.00	65.09	768	0	0	1	3	7	16	40	31	115	69	140	65	136	45	59	17	18	1	4	1	
47	0.00	66.29	768	0	0	1	5	8	12	49	25	101	80	158	65	121	46	56	19	14	1	6	1	
48	0.00	48.16	768	0	0	0	0	12	4	27	21	98	73	187	85	152	42	38	17	6	5	1	0	

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 11525a2

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
49	0.00	71.18	768	0	0	1	4	13	19	41	30	100	67	158	74	111	39	53	22	25	7	2	0	
50	0.00	64.88	768	0	1	1	2	8	12	45	38	106	65	166	63	107	46	70	17	16	4	1	0	
51	0.00	67.11	768	0	0	2	1	11	11	48	33	106	73	127	75	135	40	58	23	18	4	3	0	
52	0.00	54.01	768	0	0	0	1	8	9	31	28	128	67	162	85	128	35	42	7	11	5	1	0	
53	0.00	76.03	768	0	1	2	1	18	12	43	41	101	63	132	67	123	51	59	18	25	4	3	0	
54	0.00	57.96	768	0	0	0	0	7	12	43	28	108	67	170	70	128	47	44	9	14	2	2	1	
55	0.00	74.70	767	0	0	2	1	10	15	57	47	110	46	162	57	125	31	72	22	17	9	4	0	
56	0.00	56.95	768	0	0	0	1	8	7	42	37	114	69	176	71	126	39	51	16	16	2	2	0	

2. CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 11525a2

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57	0.00	80.18	767	1	0	5	4	12	16	41	38	105	63	129	70	122	45	63	22	16	7	8	1	
58	0.00	68.16	768	0	0	0	1	14	11	45	41	98	67	144	70	130	39	61	17	23	5	2	0	
59	0.00	69.23	768	0	0	1	4	14	8	53	31	97	66	159	73	103	48	63	27	16	4	1	0	
60	0.00	56.97	768	0	0	0	1	8	8	36	37	106	67	177	64	127	46	54	23	11	0	3	0	
61	0.00	76.20	767	0	1	3	2	13	10	52	40	99	66	140	70	110	47	61	27	17	5	3	1	
62	0.00	66.93	768	0	0	0	1	18	14	40	38	93	76	144	81	115	44	65	20	12	4	2	1	
63	0.00	69.70	768	0	0	5	1	11	13	46	29	115	60	126	79	135	41	63	18	20	3	3	0	
64	0.00	69.70	768	0	0	5	1	11	13	46	29	115	60	126	79	135	41	63	18	20	3	3	0	

2. CORRELATION VALUES FOR INPUT SEQ 4

STARTING RANDOM NUMBER =5815532

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
1	0.00	89.62	768	0 0 0 10 21 13 29 32 115 60 129 67 138 45 38 15 20 13 11 0
2	0.00	64.27	768	0 0 3 2 11 8 52 23 95 69 177 84 111 38 55 19 14 1 6 0
3	0.00	64.24	768	0 0 4 1 6 10 53 24 91 72 172 85 109 41 57 20 15 2 5 1
4	0.00	65.97	768	0 0 1 1 2 5 39 24 119 60 175 100 136 35 55 7 6 1 0 0
5	0.00	72.85	767	0 0 3 4 18 4 47 30 94 68 153 80 102 44 63 16 18 7 4 0
6	0.00	67.35	768	0 0 0 2 1 6 33 27 112 76 171 85 135 50 47 13 8 0 1 1
7	0.00	71.84	768	0 0 4 3 13 12 51 32 89 80 147 87 109 36 57 21 17 4 3 3
8	0.00	64.61	768	0 0 0 0 11 10 56 45 119 55 119 76 125 54 48 16 10 2 2 0

CORRELATION VALUES FOR INPUT SEQ =
STARTING RANDOM NUMBER =5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
9	0.00	49.79	768	0 0 0 0 6 8 30 33 109 64 168 94 138 43 51 9 12 2 1 0
10	0.00	60.51	768	0 0 0 1 11 18 31 32 98 64 168 72 138 41 58 15 14 4 3 0
11	0.00	59.63	768	0 0 2 1 12 6 34 34 119 69 169 70 128 42 44 18 11 7 2 0
12	0.00	56.82	768	0 0 0 0 11 7 32 38 102 64 168 82 129 41 44 12 12 2 4 0
13	0.00	50.69	768	0 0 0 1 4 13 36 26 108 83 166 89 128 44 47 12 11 2 0 0
14	0.00	58.33	768	0 0 1 2 7 11 43 31 104 80 164 69 132 46 44 16 14 3 1 0
15	0.00	58.45	768	0 0 0 2 14 6 27 44 103 63 169 81 123 52 49 13 11 2 2 1
16	0.00	48.26	768	0 0 0 1 4 7 35 32 117 85 163 80 133 45 46 8 11 0 1 0

42.5a.

CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =-5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM =30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
17	0.00	104.49	768	1	3	8	5	17	22	47	34	95	53	135	51	107	45	61	24	33	8	11	5	
18	0.00	63.19	768	0	0	1	0	7	11	47	40	104	64	167	66	120	55	73	15	12	3	3	0	
19	0.00	72.81	768	0	0	2	2	14	20	36	33	119	68	133	56	120	44	48	15	22	3	2	0	
20	0.00	37.96	768	0	0	0	0	1	4	25	19	103	86	192	81	151	62	43	5	6	0	0	0	
21	0.00	68.16	768	0	0	1	2	11	13	53	45	104	62	138	65	119	57	62	13	17	3	3	0	
22	0.00	48.96	768	0	0	1	0	5	8	29	38	115	78	170	65	127	39	52	13	6	2	0	0	
23	0.00	71.84	768	0	0	2	2	19	6	46	35	98	60	152	71	121	62	62	18	27	5	2	0	
24	0.00	33.20	768	0	0	0	0	0	3	23	20	99	74	207	102	156	32	47	2	3	0	0	0	

CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =-5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM =30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
25	0.00	74.38	768	0	0	3	4	10	13	49	44	113	63	121	69	112	47	72	15	22	4	5	0	
26	0.00	59.28	768	0	0	0	0	10	16	38	29	105	69	159	83	115	46	48	17	18	4	1	0	
27	0.00	63.09	768	0	0	2	2	10	15	32	28	113	67	165	86	125	41	50	18	19	4	3	0	
28	0.00	56.30	768	0	0	1	0	8	6	34	36	124	73	130	90	129	60	53	11	10	2	1	0	
29	0.00	67.28	768	0	0	1	0	13	12	47	31	107	70	132	74	123	52	56	24	23	2	1	0	
30	0.00	56.01	768	0	0	1	0	5	6	34	24	120	69	155	81	129	50	56	9	14	3	2	0	
31	0.00	68.94	768	0	1	2	1	11	13	41	44	105	74	136	72	118	41	60	23	19	1	5	0	
32	0.00	72.62	768	0	0	0	3	18	23	53	36	90	55	127	85	134	46	57	21	12	4	1	0	

CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	72.27	768	0	0	0	2	14	15	54	49	98	62	122	59	114	47	78	25	18	8	2	0	
34	0.00	62.12	768	0	0	1	0	7	11	38	50	118	51	143	40	138	54	61	16	14	5	1	0	
35	0.00	63.88	768	0	0	1	3	6	10	46	47	118	73	118	62	124	60	68	14	13	8	1	0	
36	0.00	62.10	768	0	0	0	1	13	12	34	33	102	69	154	89	106	66	60	23	18	3	1	1	
37	0.00	78.79	767	0	1	3	1	14	17	58	36	103	62	124	64	122	47	68	18	21	5	2	1	
38	0.00	64.33	767	0	0	0	2	15	8	49	31	111	82	132	69	132	35	57	18	22	3	0	0	
39	0.00	75.50	767	0	1	3	1	12	15	48	35	108	56	143	47	117	46	44	22	22	2	1	2	
40	0.00	52.48	768	0	0	1	0	4	6	33	36	112	80	157	81	131	39	53	14	18	2	0	0	

CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	93.98	764	5	1	3	3	20	13	53	39	109	53	120	42	127	44	42	15	21	6	7	1	
42	0.00	58.22	768	0	0	0	2	6	6	43	44	102	68	167	82	129	39	56	13	6	2	3	0	
43	0.00	61.16	768	0	0	0	2	7	7	40	51	95	77	154	54	133	51	55	15	20	1	2	0	
44	0.00	52.77	768	0	0	0	2	2	6	44	42	110	77	160	72	134	34	58	14	9	2	0	0	
45	0.00	83.55	765	1	1	6	5	14	17	35	40	89	59	154	58	119	54	66	19	14	6	5	3	
46	0.00	55.36	768	0	0	0	1	5	9	41	33	105	77	142	85	133	45	64	11	15	1	1	0	
47	0.00	67.78	768	0	0	2	2	14	12	45	42	101	76	137	72	123	51	48	18	16	5	1	0	
48	0.00	48.80	768	0	0	0	0	2	3	28	27	120	87	148	85	113	43	47	17	15	2	1	0	

CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =.5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
HISTOGRAM																								
49	0.00	65.08	768	0	0	0	1	14	11	48	39	105	62	143	86	118	81	57	19	22	1	1	0	
50	0.00	59.66	768	0	1	1	0	8	12	45	29	100	80	159	83	112	64	40	20	11	1	2	0	
51	0.00	59.83	768	0	1	0	0	12	11	33	25	114	78	154	81	120	67	56	19	15	1	2	1	
52	0.00	60.17	767	0	0	4	3	6	8	34	37	114	60	172	70	139	40	44	15	12	2	4	1	
53	0.00	68.08	768	0	0	0	4	11	13	54	25	103	60	144	73	119	53	48	16	19	3	2	0	
54	0.00	65.30	767	0	0	3	2	14	13	33	20	110	69	160	75	120	55	53	17	18	1	3	1	
55	0.00	63.92	768	0	0	1	2	10	10	41	44	111	74	142	63	130	38	42	20	13	2	5	0	
56	0.00	37.98	768	0	0	0	1	2	4	20	34	109	84	188	89	152	37	34	5	3	1	0	0	

CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =.5815522

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
HISTOGRAM																								
57	0.00	75.80	767	1	1	2	3	9	17	38	37	105	66	136	75	128	48	51	19	15	7	7	2	
58	0.00	56.07	767	0	2	2	1	9	3	30	30	110	86	156	81	120	58	52	12	14	1	2	0	
59	0.00	61.39	768	0	0	1	2	9	15	37	33	103	70	144	78	119	47	54	18	9	7	2	0	
60	0.00	49.34	768	0	0	0	0	12	3	28	29	111	80	153	78	155	38	45	7	6	2	1	0	
61	0.00	71.78	766	0	2	3	4	13	11	42	37	108	73	132	70	133	42	53	19	20	3	2	1	
62	0.00	56.14	767	0	0	1	2	5	9	35	37	105	74	174	77	120	39	55	15	13	1	3	0	
63	0.00	72.03	767	1	0	1	3	13	10	41	35	110	68	144	69	115	44	44	23	17	3	4	2	
64	0.00	72.03	767	1	0	1	3	13	10	41	35	110	68	144	69	115	44	44	23	17	3	4	2	

CORRELATION VALUES FOR INPUT SEQ 4

STARTING RANDOM NUMBER =.8359806

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	0.00	85.65	768	0	0	3	3	21	28	50	86	99	69	134	65	114	61	53	25	31	5	4	0	
2	0.00	83.21	768	0	0	0	0	4	8	38	19	94	89	199	110	118	30	37	9	11	2	0	0	
3	0.00	83.14	768	0	0	0	0	4	8	34	15	79	76	213	118	122	28	41	17	10	1	0	0	
4	0.00	51.28	768	0	0	0	0	7	10	38	30	121	69	173	82	120	44	56	13	10	1	0	0	
5	0.00	83.12	768	0	2	4	1	17	14	45	34	102	59	138	73	113	41	57	24	27	6	3	4	
6	0.00	53.58	768	0	0	0	0	4	9	34	40	98	68	174	75	127	52	51	21	11	0	0	0	
7	0.00	78.84	768	1	0	3	4	16	19	50	23	114	69	142	57	120	43	57	19	23	4	4	3	
8	0.00	32.35	768	0	0	0	0	0	2	18	38	98	94	211	85	138	34	32	5	1	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 5

STARTING RANDOM NUMBER =.8359906

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
9	0.00	69.05	768	0	0	3	3	11	11	50	90	88	66	141	77	122	53	47	13	24	2	5	0	
10	0.00	62.78	767	0	1	3	1	7	8	41	30	107	66	145	78	123	45	58	10	19	3	1	1	
11	0.00	71.75	767	0	2	4	0	18	14	42	17	113	72	155	75	119	42	50	20	13	3	7	1	
12	0.00	45.14	768	0	0	0	1	3	3	28	39	100	73	185	96	121	48	50	13	6	2	0	0	
13	0.00	68.96	768	1	0	3	2	12	13	44	33	107	64	157	72	121	42	51	19	19	3	4	1	
14	0.00	62.65	767	0	0	3	2	7	17	34	36	112	76	151	70	133	34	57	16	14	3	1	1	
15	0.00	72.53	768	1	0	2	6	12	12	32	39	99	69	154	83	106	48	54	19	17	4	8	3	
16	0.00	36.83	768	0	0	0	0	0	4	29	25	105	78	200	94	142	38	45	4	4	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER 0=8359906

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
17	0.00	94.83	768	2 0 3 4 25 20 42 81 98 51 138 56 103 82 77 15 27 8 12 2
18	0.00	44.97	768	0 0 0 1 1 6 31 81 93 73 179 99 130 46 48 9 10 1 0 0
19	0.00	50.15	768	0 0 0 0 8 7 32 31 116 76 175 73 132 47 46 16 6 2 1 0
20	0.00	42.83	768	0 0 0 0 4 3 31 27 110 79 172 79 158 43 43 9 8 1 0 0
21	0.00	86.52	768	0 0 8 4 17 18 47 33 106 70 130 72 98 42 63 14 29 11 4 2
22	0.00	81.11	768	0 0 0 0 3 5 29 25 115 87 138 89 134 40 35 10 7 1 0 0
23	0.00	66.72	768	0 0 0 3 12 17 34 40 100 71 136 93 106 63 71 12 25 2 2 0
24	0.00	81.83	768	0 0 0 0 0 6 27 37 102 68 152 81 103 54 38 16 3 0 0 0

2. CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER 0=8359906

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
25	0.00	111.63	768	0 1 7 8 33 24 50 39 107 54 88 51 37 32 68 32 22 7 13 4
26	0.00	44.68	768	0 0 0 1 3 6 32 35 119 68 168 80 144 44 52 9 3 0 0 0
27	0.00	50.04	768	0 0 0 0 5 6 30 42 97 88 171 73 123 52 57 11 12 0 1 0
28	0.00	46.42	768	0 0 0 2 5 7 24 37 118 69 189 77 135 47 45 6 10 1 1 0
29	0.00	72.62	767	0 0 2 2 12 12 42 46 93 67 145 69 119 36 74 22 15 3 5 0
30	0.00	48.16	768	0 0 0 1 6 9 26 26 110 75 175 89 140 37 53 13 12 0 1 0
31	0.00	57.06	768	0 0 1 1 8 14 37 28 125 53 172 81 126 46 45 12 14 5 0 0
32	0.00	58.27	768	0 0 0 0 5 9 46 41 100 76 184 80 120 35 37 14 10 3 3 0

2. CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =.8359906

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
33	0.00	101.83	767	0 1 5 3 27 17 61 29 101 53 123 51 101 45 73 24 29 10 11 1
34	0.00	57.66	768	0 0 1 3 4 7 46 33 101 78 168 73 142 46 58 15 11 3 2 1
35	0.00	54.24	768	0 1 0 0 11 9 38 27 119 68 166 76 132 38 57 12 12 2 2 0
36	0.00	53.83	768	0 0 0 1 7 12 36 29 88 86 173 76 141 39 48 10 19 1 2 0
37	0.00	88.72	765	3 0 3 3 19 26 37 39 104 51 140 69 118 44 58 20 30 3 7 0
38	0.00	54.55	768	0 0 1 3 7 7 38 32 109 67 178 71 127 43 63 10 8 2 2 0
39	0.00	80.31	766	0 0 4 0 13 23 45 32 108 62 148 56 103 46 71 21 23 4 7 0
40	0.00	86.35	768	0 0 0 0 2 6 30 36 111 70 168 80 137 54 56 14 3 2 0 0

2. CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER =.8359906

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
41	0.00	88.75	766	0 1 4 3 20 14 55 32 110 76 113 52 112 53 66 15 30 8 3 1
42	0.00	56.97	768	0 0 0 0 7 13 45 30 106 79 153 84 129 47 44 11 20 0 3 0
43	0.00	65.66	768	0 0 3 1 12 8 40 40 101 65 151 75 125 49 57 11 22 4 4 0
44	0.00	53.38	768	0 0 0 0 7 4 41 34 107 96 153 88 114 38 56 13 13 4 1 0
45	0.00	88.09	768	1 1 4 3 15 16 46 39 117 60 119 67 100 45 72 19 27 6 9 2
46	0.00	60.83	768	0 0 1 1 16 12 40 27 94 69 148 90 132 47 57 16 16 2 0 0
47	0.00	73.24	768	0 0 1 2 13 15 51 38 113 60 130 65 119 51 69 14 16 4 3 0
48	0.00	83.22	768	0 0 0 0 0 5 16 30 126 79 194 84 124 34 51 16 9 0 0 0

2. CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER =.8359906
SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
49	0.00	86.87	768	0 1 2 1 19 18 59 87 106 82 131 57 105 50 68 20 28 4 7 2
50	0.00	96.84	768	0 0 0 0 4 7 35 34 110 89 159 91 124 53 45 11 5 1 0 0
51	0.00	99.26	768	0 0 0 0 5 2 36 33 122 75 154 73 141 44 55 20 7 1 0 0
52	0.00	98.11	768	0 0 1 0 2 6 39 36 107 77 171 94 117 47 48 12 11 0 0 0
53	0.00	85.32	768	0 0 5 2 12 20 59 32 91 70 127 70 103 46 68 20 24 8 9 0
54	0.00	90.01	768	0 0 0 1 5 5 29 29 117 85 168 75 117 50 65 11 7 1 3 0
55	0.00	79.82	767	0 0 1 6 17 12 55 35 107 61 135 73 96 56 65 14 21 5 8 0
56	0.00	97.31	768	0 0 0 0 6 7 28 28 131 65 190 84 119 32 57 12 6 1 2 0

2. CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER =.8359906
SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
57	0.00	88.51	766	1 0 6 2 17 13 47 44 111 56 114 70 103 48 78 18 21 8 8 1
58	0.00	92.24	768	0 0 0 1 5 5 35 30 110 78 169 83 135 35 47 16 15 1 3 0
59	0.00	98.23	768	0 0 0 0 14 9 40 36 116 71 157 66 127 48 59 12 11 4 0 0
60	0.00	90.63	768	0 0 0 0 2 2 26 25 116 71 201 87 142 31 44 11 5 1 2 0
61	0.00	82.27	766	1 1 2 3 25 12 49 33 111 57 131 74 107 48 71 14 19 0 6 2
62	0.00	98.49	768	0 0 0 0 4 13 26 32 133 65 177 78 121 43 57 7 10 2 0 0
63	0.00	80.57	768	0 0 0 0 8 10 37 55 99 55 140 92 132 41 41 15 20 3 0 0
64	0.00	80.57	768	0 0 0 0 8 10 37 55 99 55 140 92 132 41 41 15 20 3 0 0

2. CORRELATION VALUES FOR INPUT SEQ 6

STARTING RANDOM NUMBER =-2286304

SCORE * MAC CODE	100.00 MEAN	VARIANCE	TOTAL	HISTOGRAM =30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
1	0.00	121.97	768	0	1	14	14	31	28	47	27	78	65	122	68	95	30	48	29	35	11	50	3	
2	0.00	89.57	768	0	0	0	2	7	9	29	34	109	86	148	89	138	41	34	12	12	2	0	0	
3	0.00	88.58	768	0	0	0	0	9	8	23	28	111	78	175	85	137	47	48	7	15	1	2	0	
4	0.00	89.73	768	0	0	0	0	3	3	35	32	102	93	170	101	134	35	48	7	7	0	0	0	
5	0.00	79.85	768	0	0	0	2	10	8	42	31	114	62	130	76	122	51	60	13	10	5	2	0	
6	0.00	88.04	768	0	0	0	0	4	8	27	29	103	87	147	85	136	45	48	9	10	0	0	0	
7	0.00	79.32	768	0	0	0	5	11	12	48	35	119	64	133	75	121	45	55	13	10	2	4	0	
8	0.00	87.86	768	0	0	0	3	4	18	27	29	107	81	194	83	130	32	48	2	10	1	2	0	

2. CORRELATION VALUES FOR INPUT SEQ 6
STARTING RANDOM NUMBER =-2286304

SCORE * MAC CODE	100.00 MEAN	VARIANCE	TOTAL	HISTOGRAM =30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
9	0.00	80.81	768	0	0	1	3	10	17	49	32	95	74	122	87	121	44	44	24	33	2	2	0	
10	0.00	52.79	768	0	0	1	1	5	6	42	33	86	94	157	77	131	50	58	12	11	2	0	0	
11	0.00	65.15	768	0	0	0	2	16	7	50	42	98	71	144	72	129	44	52	14	20	2	3	0	
12	0.00	50.68	768	0	0	1	0	13	2	24	27	106	67	191	84	135	48	41	7	14	2	2	0	
13	0.00	77.83	767	0	0	0	3	18	19	49	43	112	51	130	71	117	39	58	21	29	2	2	0	
14	0.00	53.97	768	0	0	1	2	7	4	38	36	114	65	177	76	131	43	42	17	11	4	0	0	
15	0.00	67.54	768	0	0	2	1	14	9	40	43	105	67	141	58	133	45	44	23	14	5	2	0	
16	0.00	42.11	768	0	0	0	0	2	5	25	43	122	68	175	84	145	35	55	7	2	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =-2284304
SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM =30 =27 =24 =21=18 =15 =12 =9 =6 =3 0 3 6 9 12 15 18 21 24 27 30
17	0.00	87.55	768	0 0 3 2 19 24 48 82 91 89 131 58 114 37 78 24 23 8 7 1
18	0.00	55.95	768	0 0 0 1 3 9 47 25 121 69 142 71 138 60 56 15 15 1 0 0
19	0.00	58.76	768	0 0 0 3 7 9 55 37 102 60 123 61 124 47 45 12 12 1 0 0
20	0.00	47.38	768	0 0 0 0 5 1 32 33 125 69 148 80 103 57 53 14 6 1 0 0
21	0.00	64.47	768	0 0 1 2 16 9 47 39 96 84 136 66 121 39 52 15 20 4 1 0
22	0.00	47.27	768	0 0 0 0 1 7 45 34 122 58 124 71 138 56 46 10 4 2 0 0
23	0.00	64.41	768	0 0 1 0 12 8 42 43 110 71 118 88 126 50 45 18 10 2 0 0
24	0.00	66.38	768	0 0 0 0 2 0 27 35 122 64 147 81 139 56 48 8 11 0 0 0

2. CORRELATION VALUES FOR INPUT SEQ 4
STARTING RANDOM NUMBER =-2284304
SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM =30 =27 =24 =21=18 =15 =12 =9 =6 =3 0 3 6 9 12 15 18 21 24 27 30
25	0.00	108.90	765	3 2 7 9 21 14 53 61 95 63 111 66 105 49 56 19 31 9 11 2
26	0.00	47.75	768	0 0 0 5 4 2 29 39 118 71 170 85 137 45 43 13 8 1 1 0
27	0.00	53.06	767	0 0 1 0 4 7 38 30 118 66 161 89 129 57 53 10 12 2 0 0
28	0.00	51.96	768	0 0 1 0 9 11 32 29 113 77 178 74 136 34 44 13 10 4 0 0
29	0.00	71.08	768	0 1 0 4 13 11 43 30 117 67 128 81 119 51 58 18 26 3 3 0
30	0.00	54.77	768	0 0 0 1 12 8 24 33 117 77 157 71 137 62 57 10 17 4 0 0
31	0.00	60.25	768	0 0 1 2 14 14 29 43 103 75 152 73 131 45 58 10 14 2 2 0
32	0.00	31.95	768	0 0 0 0 0 1 22 30 118 100 220 68 106 48 30 3 1 0 0 0

2. CORRELATION VALUES FOR INPUT SEQ A
STARTING RANDOM NUMBER =-2286304

SCORE * 100.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	76.03	768	0	0	4	2	10	6	51	54	111	60	111	42	103	42	89	18	14	3	4	2
34	0.00	51.39	768	0	0	1	1	6	5	36	33	100	70	172	87	132	45	59	10	9	0	1	1
35	0.00	52.55	768	0	0	2	0	6	6	43	30	118	68	168	84	124	42	58	8	8	2	1	0
36	0.00	49.26	768	0	0	0	0	11	7	25	32	105	68	181	94	130	42	48	12	13	3	1	0
37	0.00	84.74	768	1	1	3	4	23	12	48	37	96	70	133	74	97	55	58	17	18	4	9	1
38	0.00	51.54	768	0	0	0	1	7	16	31	20	107	83	194	83	113	33	58	12	14	1	1	0
39	0.00	83.95	767	1	1	3	4	16	16	45	36	94	60	146	66	118	31	73	19	25	5	8	0
40	0.00	33.38	768	0	0	0	0	2	3	20	19	105	86	192	118	136	49	28	6	5	0	0	0

2. CORRELATION VALUES FOR INPUT SEQ A
STARTING RANDOM NUMBER =-2286304

SCORE * 100.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	95.27	766	2	0	4	5	23	21	51	45	94	47	121	82	113	48	46	16	29	12	7	0
42	0.00	60.24	768	0	0	1	1	11	10	39	45	112	70	146	69	126	50	57	19	9	1	2	0
43	0.00	69.54	768	0	1	2	1	14	9	46	33	100	73	145	70	123	49	59	12	22	5	3	1
44	0.00	46.85	768	0	0	1	1	4	6	32	44	98	79	191	83	106	55	54	7	6	1	0	0
45	0.00	84.45	765	1	0	3	4	13	20	48	30	100	63	141	63	111	44	67	21	23	9	4	0
46	0.00	56.68	768	0	0	0	2	3	9	45	39	101	67	156	81	125	46	67	11	16	0	1	1
47	0.00	67.37	768	0	1	1	1	15	14	44	40	95	69	157	74	123	48	45	14	17	3	2	3
48	0.00	92.24	768	0	0	0	2	4	3	28	26	113	99	171	83	103	40	48	14	4	0	0	0

2. CORRELATION VALUES FOR INPUT SEQ 6
STARTING RANDOM NUMBER =+2284306

SCORE = MAC CODE	100.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
49	0.00	118.82	768	5	3	10	4	25	14	55	37	103	56	123	42	108	60	65	21	29	9	3	3	
50	0.00	47.97	768	0	0	0	1	5	4	35	33	120	82	171	80	132	41	40	17	6	1	0	0	
51	0.00	50.36	768	0	0	1	0	5	6	32	30	115	75	144	73	137	67	44	14	8	2	1	0	
52	0.00	33.57	768	0	0	0	0	0	5	25	29	109	88	199	88	151	40	29	3	1	1	0	0	
53	0.00	63.71	768	0	0	0	1	13	12	43	31	97	70	158	78	125	42	53	14	24	6	0	1	
54	0.00	38.59	768	0	0	0	0	1	4	21	25	120	83	170	87	162	35	46	8	5	1	0	0	
55	0.00	58.60	768	0	0	0	1	10	15	40	34	103	71	167	67	141	41	43	15	14	2	1	0	
56	0.00	31.99	768	0	0	0	0	1	2	24	24	106	82	217	99	136	33	28	7	2	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 6
STARTING RANDOM NUMBER =+2284306

SCORE = MAC CODE	100.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
57	0.00	75.69	768	0	1	0	1	14	12	46	39	92	70	151	50	124	53	57	20	26	3	6	0	
58	0.00	48.48	767	0	0	1	1	5	5	25	29	120	73	163	83	135	45	44	10	8	0	0	0	
59	0.00	56.62	767	0	0	0	4	4	7	44	42	116	88	167	71	123	57	49	13	10	0	2	0	
60	0.00	41.54	768	0	0	0	0	2	6	20	32	106	92	186	75	137	44	49	14	5	0	0	1	
61	0.00	71.48	768	1	0	1	6	11	9	54	38	116	60	135	67	128	42	53	26	13	4	4	0	
62	0.00	53.92	768	0	0	0	1	3	9	40	46	116	66	155	73	145	42	45	7	15	3	1	1	
63	0.00	74.50	768	0	1	2	5	8	13	44	36	119	54	139	71	115	45	62	21	21	7	4	1	
64	0.00	74.50	768	0	1	2	5	8	13	44	36	119	54	139	71	115	45	62	21	21	7	4	1	

2. CORRELATION VALUES FOR INPUT SEQ 7

STARTING RANDOM NUMBER = -827634

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM																				
				<-3σ	-2σ	-1σ	-1σ-.5σ	-.5σ	0	.5σ	1σ	1σ-2σ	2σ-3σ	>3σ	0	3	6	9	12	15	18	21	24	27	30
1	0.00	99.70	768	0	0	5	3	19	20	80	86	98	81	100	81	92	85	93	24	25	6	3	0	
2	0.00	41.92	768	0	0	0	0	7	14	58	97	115	73	183	72	114	81	74	20	8	0	0	0	
3	0.00	41.72	768	0	0	0	0	1	9	58	66	104	73	184	69	133	66	81	22	14	0	0	0	
4	0.00	43.82	768	0	0	0	0	8	8	24	38	128	79	141	78	140	48	41	10	10	0	0	0	
5	0.00	103.02	767	1	1	5	10	22	20	49	36	83	51	134	64	101	39	71	20	24	12	12	5	
6	0.00	80.41	768	0	0	0	1	9	7	25	30	122	78	144	89	138	48	51	6	14	1	0	0	
7	0.00	103.06	767	2	1	5	10	30	14	54	31	93	47	181	68	108	37	47	20	25	10	12	1	
8	0.00	44.36	768	0	0	0	0	4	7	28	36	119	86	160	102	128	36	47	8	8	0	1	0	

2. CORRELATION VALUES FOR INPUT SEQ 7

STARTING RANDOM NUMBER = -827634

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM																				
				<-3σ	-2σ	-1σ	-1σ-.5σ	-.5σ	0	.5σ	1σ	1σ-2σ	2σ-3σ	>3σ	0	3	6	9	12	15	18	21	24	27	30
9	0.00	123.98	762	3	3	11	4	25	20	43	33	88	52	107	44	95	38	43	25	34	14	14	2	
10	0.00	43.37	768	0	0	0	1	3	9	28	37	122	73	174	71	127	81	50	8	8	1	2	0	
11	0.00	64.51	768	0	0	1	0	8	17	60	38	110	75	135	74	111	44	58	23	16	1	3	0	
12	0.00	51.77	768	0	0	1	3	2	5	32	37	95	66	181	69	110	47	40	9	12	1	3	0	
13	0.00	114.35	762	3	2	7	9	29	20	59	41	86	61	114	57	99	33	58	32	34	12	9	0	
14	0.00	47.63	768	0	0	0	1	6	11	26	38	120	77	175	77	130	42	47	6	10	2	0	0	
15	0.00	69.96	768	0	0	1	1	13	14	56	34	94	58	137	83	114	52	58	24	25	4	0	0	
16	0.00	45.14	768	0	0	0	0	2	2	37	49	118	84	164	71	143	41	40	9	6	1	1	0	

2. CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = .27763a

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30	HISTOGRAM
17	0.00	70.03	768	0	0	2	1	22	7	40	28	98	72	159	68	119	47	41	12	22	A	A	1		
18	0.00	50.34	768	0	0	0	1	6	8	35	24	100	82	179	81	130	48	41	13	15	2	1	0		
19	0.00	55.89	768	0	0	0	1	12	9	37	39	110	86	153	83	121	42	42	16	14	3	1	0		
20	0.00	43.95	768	0	0	0	0	5	5	28	29	98	87	186	82	136	53	38	14	6	1	0	0		
21	0.00	65.65	768	0	0	2	1	14	10	47	44	107	57	148	81	114	38	41	12	14	5	3	0		
22	0.00	47.88	768	0	0	0	1	6	4	40	43	98	73	180	81	139	20	45	15	10	1	0	0		
23	0.00	65.89	768	0	0	0	4	14	6	41	34	112	68	145	70	117	44	31	11	14	2	3	0		
24	0.00	36.36	768	0	0	0	0	1	2	19	24	106	84	195	93	161	30	42	4	1	0	0	0		

2. CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = .27763a

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30	HISTOGRAM
25	0.00	87.74	767	0	0	2	2	22	22	63	43	107	48	111	58	103	42	93	24	20	3	2	1		
26	0.00	47.97	768	0	0	0	2	2	5	45	41	97	77	177	89	129	32	50	9	12	0	1	0		
27	0.00	60.37	767	0	0	1	1	11	9	42	27	97	76	164	79	121	52	47	17	19	3	0	1		
28	0.00	37.72	768	0	0	0	0	1	3	23	36	117	85	194	96	122	39	40	7	5	0	0	0		
29	0.00	82.72	767	0	0	3	4	13	16	52	37	102	63	127	66	105	49	70	21	27	4	5	0		
30	0.00	39.33	768	0	0	0	0	2	2	31	19	108	83	186	85	143	50	44	6	7	0	0	0		
31	0.00	63.10	768	0	0	0	3	9	16	41	47	103	75	129	68	132	47	53	18	13	3	2	0		
32	0.00	37.55	768	0	0	0	0	2	2	30	37	108	97	192	95	138	25	32	6	10	1	0	0		

2. CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = .27743

SCORE = 100.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
33	0.00	134.81	768	2	4	13	9	28	14	56	81	93	60	84	38	101	67	80	21	35	9	14	7	
34	0.00	62.30	768	0	0	0	0	4	12	48	35	127	62	132	61	140	69	65	16	13	2	0	0	
35	0.00	62.34	768	0	0	0	1	9	13	50	53	110	69	119	49	129	54	65	14	11	2	0	0	
36	0.00	38.76	768	0	0	0	1	3	5	21	20	102	89	200	86	133	40	43	9	6	0	0	0	
37	0.00	93.19	768	0	0	4	2	31	21	49	44	102	61	108	63	119	43	43	25	28	7	7	0	
38	0.00	40.29	768	0	0	0	0	4	4	29	21	118	83	192	109	117	36	37	10	4	2	0	0	
39	0.00	86.11	768	0	0	4	3	13	19	58	28	107	58	136	54	104	53	71	14	28	6	4	0	
40	0.00	40.48	768	0	0	0	0	2	2	32	25	110	75	178	86	146	43	45	9	5	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = .27743

SCORE = 100.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
41	0.00	85.75	768	0	0	4	2	22	17	51	31	112	57	142	55	116	38	57	21	34	4	5	1	
42	0.00	96.11	768	0	0	0	0	4	9	34	35	106	83	193	69	119	42	40	8	4	2	0	0	
43	0.00	57.27	768	0	0	0	0	6	13	37	33	116	56	167	74	132	37	44	14	12	1	4	0	
44	0.00	92.65	768	0	0	0	1	5	2	31	28	115	92	186	91	119	48	35	5	6	3	1	0	
45	0.00	81.18	768	0	0	2	1	20	16	62	30	90	51	136	79	116	34	70	24	25	5	7	0	
46	0.00	45.99	768	0	0	0	1	3	6	22	40	125	59	165	88	142	49	45	15	7	1	0	0	
47	0.00	62.08	768	0	0	1	3	13	14	48	24	104	71	153	78	121	57	49	16	11	3	1	0	
48	0.00	45.64	768	0	0	0	4	9	8	21	19	101	75	182	100	143	44	38	11	11	0	0	0	

2. CORRELATION VALUES FOR INPUT SET 7
STARTING RANDOM NUMBER = 27763.

SCORE = 100.00

VAR CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
HISTOGRAM																								
49	0.00	113.27	768	5	1	7	8	23	20	62	35	98	57	115	86	90	50	71	23	34	6	13	3	
50	0.00	49.62	768	0	0	0	0	6	7	44	34	101	88	167	66	131	55	47	7	9	2	0	0	
51	0.00	56.82	768	0	0	0	2	7	6	36	40	110	62	155	86	140	33	58	22	9	1	2	0	
52	0.00	46.07	768	0	0	1	0	2	13	27	31	117	80	179	84	128	41	52	10	3	0	0	0	
53	0.00	105.28	767	1	2	5	5	23	23	46	48	109	38	112	63	92	49	74	29	33	10	9	3	
54	0.00	47.63	768	0	0	0	0	4	8	32	35	105	63	166	111	121	51	44	15	8	3	0	0	
55	0.00	55.35	767	0	0	6	3	19	18	49	44	98	64	138	58	108	46	58	17	29	10	2	0	
56	0.00	48.29	768	0	0	0	0	5	9	32	39	117	81	162	83	146	56	42	4	11	1	0	0	

2. CORRELATION VALUES FOR INPUT SET 7
STARTING RANDOM NUMBER = 27763.

SCORE = 100.00

VAR CODE	MEAN	VARIANCE	TOTAL	-30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
HISTOGRAM																								
57	0.00	89.50	768	0	2	2	5	23	18	46	39	113	45	119	71	106	52	58	21	39	5	4	2	
58	0.00	55.23	768	0	0	1	1	6	8	36	34	107	71	162	95	116	44	48	24	11	3	1	0	
59	0.00	67.78	768	2	0	3	2	13	10	59	27	92	71	159	61	121	53	46	19	17	1	2	2	
60	0.00	46.79	768	0	0	0	1	4	8	24	32	99	72	183	102	147	31	40	14	6	3	1	0	
61	0.00	73.67	768	0	0	0	6	12	15	60	27	114	58	144	62	112	44	73	16	15	8	1	1	
62	0.00	54.79	768	1	0	2	3	7	7	43	21	106	84	167	79	117	51	45	5	10	1	0	0	
63	0.00	76.23	766	0	0	7	1	9	16	46	37	96	61	147	75	118	46	58	22	17	5	3	2	
64	0.00	76.23	766	0	0	7	1	9	16	46	37	96	61	147	75	118	46	58	22	17	5	3	2	

2. CORRELATION VALUES FOR INPUT SET 8

STARTING RANDOM NUMBER = 2160414

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM =30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
1	0.00	100.99	768	0	0	6	8	27	19	53	58	106	69	99	86	103	51	73	14	28	14	7	0	
2	0.00	45.85	768	0	0	0	1	5	10	30	36	119	80	167	107	122	35	41	8	6	2	2	0	
3	0.00	45.15	768	0	0	0	0	7	4	30	23	100	91	173	81	149	47	42	11	8	5	0	0	
4	0.00	28.70	768	0	0	0	0	1	2	25	17	112	83	234	104	128	30	24	8	1	0	0	0	
5	0.00	72.35	765	1	0	2	3	6	7	40	30	119	57	140	72	109	53	44	7	16	2	2	1	
6	0.00	28.23	768	0	0	0	0	1	0	21	14	95	79	244	85	144	35	34	2	2	0	0	0	
7	0.00	71.31	767	0	3	5	8	11	4	44	43	111	69	184	71	109	46	40	10	11	3	2	1	
8	0.00	25.89	768	0	0	0	0	0	2	9	21	117	101	220	112	135	30	17	2	2	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ A

STARTING RANDOM NUMBER = 2160414

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM =30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
9	0.00	105.66	766	2	2	2	3	23	20	49	44	87	67	104	61	101	51	30	28	31	4	4	3	
10	0.00	39.45	768	0	0	0	0	3	5	15	30	110	85	193	85	138	51	38	8	6	2	0	0	
11	0.00	54.93	768	1	0	0	0	5	11	41	45	128	61	148	68	128	42	43	10	5	1	0	0	
12	0.00	52.48	768	0	0	1	3	4	8	25	35	116	81	148	89	134	48	54	10	10	1	3	0	
13	0.00	100.39	766	1	2	3	7	15	19	79	47	108	63	99	68	114	47	74	22	29	6	6	0	
14	0.00	39.29	768	0	0	0	0	5	3	24	31	111	82	204	82	134	45	31	8	5	1	0	0	
15	0.00	58.68	768	0	0	1	0	5	7	52	40	93	69	164	73	119	53	72	13	12	2	1	0	
16	0.00	32.53	768	0	0	0	1	3	9	13	21	108	81	235	97	147	85	15	8	5	0	0	0	

2. CORRELATION VALUES FOR INPUT SEQ 8
STARTING RANDOM NUMBER = 21604a

SCORE = 100.00

MAC CODE	MEAN	VARIANCE	TOTAL	=30	=27	=24	=21	=18	=15	=12	=9	=6	=3	0	3	6	9	12	15	18	21	24	27	30
				HISTOGRAM																				
17	0.00	118.35	765	3	1	3	5	25	23	74	68	86	51	85	90	89	52	80	24	47	6	5	3	
18	0.00	33.49	768	0	0	0	0	2	4	18	80	97	83	214	103	147	36	38	8	3	0	1	0	
19	0.00	38.42	768	0	0	1	1	2	2	24	31	115	90	182	93	143	43	27	4	8	1	0	0	
20	0.00	44.25	768	0	0	0	0	5	7	24	34	105	70	193	89	129	39	47	14	5	3	1	0	
21	0.00	84.86	767	0	1	6	3	27	12	48	38	91	73	127	77	115	44	50	11	18	6	10	1	
22	0.00	48.10	768	0	0	1	1	5	6	27	29	112	97	188	104	117	37	48	4	6	3	0	0	
23	0.00	61.33	768	0	0	1	0	18	6	40	31	105	71	156	84	122	49	53	18	14	3	6	0	
24	0.00	29.89	768	0	0	0	0	0	0	18	29	101	82	224	109	122	51	34	7	0	0	0	0	

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APPENDIX 43

PROGRAM FOR GENERATION OF BTS SEQUENCES AND SCORES: DATA ANALYSIS USING THE FAST HADAMARD TRANSFORM TECHNIQUE

```
^J68.
^ASSIGN S=MTC, SI=CR,LO=LP, BS=MT1.
^FORTRAN SI, LO, 39.
*     1  *
*     2  C      EMC AMY 68 -17 -1-1
*     3  C      GENERATION AND TEST OF SEQUENCES FOR ABSOLUTE COMP TECH
*     4  C      FAST HADAMARD TRANSFORM TECHNIQUE
*     5         DIMENSION ISUMT(64),IXMIS (64,20),ISIG(128)
*     6         DIMENSION IR(10),IIR(10),X(10),P(10)
*     7         DIMENSION RN(10),A(10),ISGL(64),XN(10),SN(10)
*     8         DIMENSION IB(64),IA(64)
*     9  C
*    10  C
*    11  C      READ INITIAL VALUES
*    12         READ 100,IRR
*    13         READ 102,(RN(I),I=1,10)
*    14         PRINT 103,(RN(I),I=1,10)
*    15  103      FORMAT(10X,$ RN(I)=$,10F5.2)
*    16         READ 102,(SN(I),I=1,10)
*    17         PRINT 106,(SN(I),I=1,10)
*    18  106    FORMAT (10X,$SN(I)=$,10F5.2 )
*    19  100    FORMAT (I8)
*    20         READ 102,(A(I),I=1,10)
*    21  102    FORMAT (10F5.2)
*    22         DO 9,I=1,10
*    23         READ 100, IR(I)
*    24  9      CONTINUE
*    25         READ 100, KV
*    26  C
*    27  C
*    28  C
*    29  C      INITIAL CONDITIONS
*    30         IBIG=5**9
*    31         SMALL=1./(2**23-1)
*    32  C      STORE INITIAL VALUES.
*    33         DO 8,I=1,10
*    34         IIR(I)=IR(I)
*    35  8      CONTINUE
*    36         KN =0
*    37  C
*    38  C
*    39  C      COMPUTE SCORE
*    40  C
*    41  C      GENERATE OR READ PROBABILITIES
*    42         IF(SENSE SWITCH 4) 250,251
*    43  250    READ 102, (P(I),I=1,10)
*    44         GO TO 252
*    45  251    CONTINUE
*    46  52     DO 40,I=1,10
*    47         IRR=IRR*IBIG
*    48         R=((IRR+0.5)*SMALL)*0.2
*    49         P(I)=0.9+R
*    50  40     CONTINUE
```

```
*    51   252   CONTINUE
*    52         PRINT 41,(P(I),I=1,10)
*    53   41    FORMAT (10X,'P(I)=',10F8.4)
*    54   C
*    55   C
*    56   C     COMPUTE  AND PRINT SCORE
*    57   C     P(I) IS THE PROBABILITY OF ADDING NOISE TO INPUT I
*    58   C     RN(I) IS PROB OF EACH BIT OF INPUT(I) IS A1GIVEN PRESENT BIT IS A1
*    59   C     SN(I) IS PROB OF EACH BIT OF INPUT (I) IS A1 GIVE PRESENT BIT A0
*    60   C     IR(I) IS THE RANDOM NUMBER USED TO GENERATE INPUT(I)
*    61   C
*    62   C     GENERATE FIRST 128 BITS OF INPUT
*    63   C     KV IS INPUT SEQUENCE INDICATOR.
*    64   C     LT IS SHIFT CONTROL.
*    65   203   PRINT 66, KV
*    66         LT=0
*    67   66    FORMAT(1H1,10X,'INPUT SEQ.=',I4)
*    68         INDEX=1
*    69         DO 1003, IN=1,20
*    70         DO 1004, I=1,64
*    71         IX=ISIG(IN,I)=0
*    72   1004  CONTINUE
*    73   1003  CONTINUE
*    74         DO 120, I=1,64
*    75         ISAL(I)=0
*    76         ISAT(I)=0
*    77   120   CONTINUE
*    78   C
*    79   C
*    80   C
*    81   65    LT=LT+1.
*    82         ISI=1
*    83         DO 20, IN=INDEX, 128
*    84         IR(KV)=IR(KV)*IBIG
*    85         R=(IR(KV)*0.5)*SMALL  +0.5
*    86         IF(ISI) 256,257,257
*    87   257   XN(KV)= RN(KV)
*    88         GO TO 258
*    89   256   XN(KV)=SN(KV)
*    90   258   CONTINUE
*    91         IF(R-X.(KV)) 21,21,22
*    92   22    ISIG(IN)=1
*    93         GO TO 23
*    94   21    ISIG(IN)=-1
*    95   23    CONTINUE
*    96         ISI=ISIG(IN)
*    97         IRR=IRR*IBIG
*    98         R=((IRR*0.5)*SMALL+0.5)
*    99         IF(R-P(KV)) 31,31,32
*   100   31    IRR = IRR* IBIG
*   101         R = ((IRR*0.5)*SMALL + 0.5)
*   102         IF( R-0.5) 604,601,601
*   103   604   ISIG(IN) =-1
*   104         GO TO  602
```

```
*   105    601   ISIG[IN] =1
*   106    602   CONTINUE
*   107     32   CONTINUE
*   108     20   CONTINUE
*   109     C
*   110     C
*   111     C     LL IS A SHIFT CONTROL
*   112     C     DATA CONTROL
*   113           DO 600 LL=1,64
*   114           II=0
*   115    600    DO 460, I=LL , LL+63
*   116           II=II+1
*   117           IB[II] = ISIG[I]
*   118    460    CONTINUE
*   119           IF( SENSE SWITCH 1) 510,511
*   120    510    PRINT 412,( IB[K), K=1,32)
*   121           PRINT 412,( IB[K) , K=33,64)
*   122    511    CONTINUE
*   123     C     FAST HADAMARD TRANSFORM
*   124           M=2
*   125           NU=1
*   126           NK=0
*   127           MA=1
*   128           MI=1
*   129           DO 450 NL=1,6
*   130           L=1
*   131           DO 430 J=1,63,M
*   132           DO 434 I=1,NU
*   133           MU=J+I-1
*   134           IA[L]= IB[MU]+IB[MU+MI]
*   135           L=L+1
*   136    434    CONTINUE
*   137           DO 425 I=1,NU
*   138           MU=J+I-1
*   139           IA[L]=IB[MU]-IB[MU+MI]
*   140           L=L+1
*   141    425    CONTINUE
*   142    430    CONTINUE
*   143           MA=MA+1
*   144           NK=NK+1
*   145           M=2**MA
*   146           NU=2**NK
*   147           MI=NU
*   148           DO 440 K=1,64
*   149           IB[K]=IA[K]
*   150    440    CONTINUE
*   151    450    CONTINUE
*   152     C
*   153     C
*   154     C     DATA ANALYSIS
*   155           DO 121, K=1,64
*   156           ISUMT[K] = IB[K] + ISUMT[K]
*   157           ISQL[K]= ISQL[K] + IB[K]**2
*   158           DO 1000, IN=1,20
```

```
*  159          IF( IB(K) -(-33,+3*IXX)) 1001,1001,1000
*  160  1001    IXIS(K,IX) =IXIS(K,IX) +1
*  161          GO TO 1002
*  162  1000    CONTINUE
*  163  1002    CONTINUE
*  164   121    CONTINUE
*  165          IF( SENSE SWITCH 3) 131,132
*  166   131    PRINT 413
*  167   413    FORMAT( //)
*  168          PRINT 412,( IB(K), K=1,32)
*  169   412    FORMAT( 10X,32I3)
*  170          PRINT 412,( IB(K),K=33,64)
*  171   132    CONTINUE
*  172   600    CONTINUE
*  173  C
*  174  C       TOTAL SHIFT DETECT
*  175          IF(LT-12) 60,61,61
*  176   61     GO TO 67
*  177   60     CONTINUE
*  178  C
*  179  C       TRANSFER OPERATION
*  180          DO 62, INN=1,64
*  181          IN = 64 + INN
*  182          ISIG(INN) = ISIG(IN)
*  183   62     CONTINUE
*  184          INDEX=64
*  185          GO TO 65
*  186   67     CONTINUE
*  187          NIN=16
*  188   82     FORMAT(1H1)
*  189   79     FORMAT(///)
*  190          DO 74, K=1,64
*  191          NIN=NIN+1
*  192          IF(NIN-16) 80,80,81
*  193   81     PRINT 82
*  194          PRINT79
*  195          PRINT 70,KV,IIR(KV)
*  196          PRINT 71, SCORE
*  197          PRINT 73
*  198          NIN=0
*  199   80     CONTINUE
*  200  C       COMPUTE MEAN, VAR, TOTAL
*  201   70     FORMAT( 1H1,10X,$CORRELATION VALUES FOR INPUT SEQ$,I4,/,10X,$
*  202         1 STARTING RANDOM NUMBER =$, I8)
*  203   71     FORMAT(10X,$ SCORE =$,F10.2,44X,$  HISTOGRAM$)
*  204   73     FORMAT(10X,$MAC CODE          MEAN     VARIANCE TOTAL -30 -27 -24 -21
*  205         1-18 -15 -12 -9 -6   -3  0    3    6   9  12  15  18  21  24  27  3
*  206         20$)
*  207   72     FORMAT(/,13X, I4,6X,F6.2,4X,F6.2,4X,I4,3X,20(I3,1X))
*  208          SMEAN= ISUMT(K)/76R .
*  209          VAR=(76R.*ISQL(K)-(ISUMT(K))**2)/(76R.**2)
*  210          ITOT=0
*  211          DO 75, IAN=1,20
*  212          ITOT=ITOT+IXNIS(K,IAN)
```

```
*  213   75     CONTINUE
*  214          PRINT 72, KV, BMEAN, VAR, ITOT,(IX-ISCK,INN),INN=1,20)
*  215   74     CONTINUE
*  216          KV = KV+1
*  217          IF(KV-10) 200,200,201
*  218   200    GO TO 203
*  219     201  KKV = KKV+1
*  220          IF( KKV-3) 730,730,701
*  221    730   KV=1
*  222          GO TO 203
*  223   701    STOP
*  224   *      END
```

PROGRAM ALLOCATION

02006 ISD T		02106 ISMIS		02506 ISIS		02706 IR	
02720 IIR		02732 N		02744 P		02770 RN	
03014 A		03040 ISCL		03140 XN		03164 SN	
03210 IB		03310 IA		03410 IHR		03411 I	
03412 KV		03413 ISIS		03414 NKN		03415 LT	
03416 INDEX		03417 I.A		03420 IN		03421 ISI	
03422 LL		03423 II		03424 K		03425 V	
03426 ND		03427 NK		03430 MA		03431 MI	
03432 NL		03433 L		03434 J		03435 MJ	
03436 NIN		03437 ITOT		03440 IAN		03441 SMALL	
03442 R		03445 SCORE		03447 BMEAN		03451 VAR	

APPENDIX 44

HADAMARD TRANSFORM SEQUENCES TWO THROUGH TEN

CORRELATION VALUES FOR INPUT SCO 2
STARTING RANDOM NUMBER = 2160414

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	21.00	38.24	638	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	89	179	84	177	51	
2	-0.00	70.88	767	0	1	3	2	9	11	44	47	87	68	153	71	113	45	72	15	18	2	4	2	
3	0.01	45.28	768	0	0	0	0	5	6	27	24	114	82	167	85	146	50	37	14	9	2	0	0	
4	-0.00	46.53	768	0	0	0	0	5	4	30	24	122	79	160	92	139	49	37	13	13	1	0	0	
5	0.02	34.17	768	0	0	0	0	0	2	24	22	96	90	208	98	132	45	42	8	1	0	0	0	
6	-0.00	59.30	768	0	0	2	0	4	8	46	38	109	62	180	66	126	50	60	19	16	1	1	0	
7	-0.00	34.32	768	0	0	0	0	0	1	24	27	109	72	244	84	142	42	40	6	3	0	0	0	
8	0.00	57.78	768	0	0	1	0	4	7	41	45	107	80	125	85	132	49	54	27	8	1	2	0	
9	0.04	31.11	768	0	0	0	0	1	2	16	21	98	85	217	97	150	43	31	5	2	0	0	0	
10	-0.00	80.28	768	0	0	1	2	14	15	64	33	99	62	135	89	103	49	65	30	32	3	2	0	
11	-0.02	47.80	768	0	0	0	1	6	3	34	26	106	82	176	84	142	33	48	16	9	1	1	0	
12	0.00	61.96	768	0	0	0	0	10	17	37	36	91	75	145	79	128	48	59	10	22	6	1	0	
13	-0.03	32.65	768	0	0	0	0	1	2	17	24	106	83	285	109	132	49	31	7	2	0	0	0	
14	0.00	75.36	768	0	0	1	2	15	13	66	22	102	60	139	78	113	46	64	30	20	6	1	0	
15	-0.01	48.84	768	0	0	1	0	5	6	34	33	99	74	145	71	146	42	46	13	11	1	1	0	
16	0.00	65.55	768	0	0	0	1	18	15	33	29	106	65	151	89	134	46	58	18	19	3	3	0	
17	0.04	36.48	768	0	0	0	0	3	3	19	15	107	85	211	105	129	30	54	9	6	1	1	0	

CORRELATION VALUES FOR INPUT SEQ 2
STARTING RANDOM NUMBER = 2160414

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.01	86.86	768	0	0	3	3	15	15	56	48	104	65	99	53	117	58	73	17	30	5	5	2
19	0.00	50.01	768	0	0	0	1	4	8	30	28	120	75	181	82	125	47	65	12	9	0	1	0
20	0.00	57.96	768	0	0	0	0	7	14	41	26	113	69	160	74	115	45	73	17	12	1	1	0
21	-0.01	38.69	768	0	0	0	0	2	4	25	31	92	76	208	80	144	40	42	8	5	1	0	0
22	-0.00	78.94	768	0	0	2	1	17	17	51	35	104	60	124	70	120	44	68	20	23	8	4	0
23	-0.00	43.30	768	0	0	0	0	3	9	31	20	106	73	197	85	135	44	47	8	9	1	0	0
24	0.00	70.46	768	0	0	0	4	11	15	44	42	108	41	157	85	120	57	63	16	18	2	4	1
25	0.00	36.88	768	0	0	1	0	2	5	17	27	103	80	196	108	135	38	44	9	2	1	0	0
26	-0.00	84.42	765	2	2	2	4	14	8	55	38	103	65	163	80	127	45	68	16	19	7	6	1
27	0.01	51.53	768	0	0	0	2	6	9	25	37	108	66	183	72	130	53	49	13	14	0	1	0
28	0.00	59.38	768	0	0	1	4	9	7	38	25	109	74	184	73	123	41	62	17	19	2	0	0
29	0.03	40.34	768	0	0	0	1	2	4	28	27	93	80	201	88	144	45	36	10	9	0	0	0
30	0.01	81.59	768	0	0	2	4	20	14	53	33	97	47	131	89	118	47	63	18	24	8	5	0
31	-0.00	46.07	765	0	0	0	0	4	6	33	32	91	77	204	92	122	43	49	11	13	1	0	0
32	-0.00	68.57	768	0	0	1	3	9	11	47	38	105	68	145	66	112	59	59	13	24	2	5	1
33	0.04	48.82	768	0	0	0	0	1	2	32	44	142	60	141	71	123	64	75	12	1	0	0	0
34	0.01	135.65	762	3	2	12	11	29	18	59	37	101	43	97	48	103	41	69	29	33	15	19	4

CORRELATION VALUES FOR INPUT SEQ. 2
STARTING RANDOM NUMBER = 21601.

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	-0.00	51.34	768	0	0	0	1	10	4	37	29	95	71	167	99	113	51	46	13	12	2	1	0
36	0.00	55.92	768	0	0	0	0	9	11	37	30	98	79	160	82	118	32	64	11	19	2	1	0
37	0.02	34.69	768	0	0	0	0	1	1	17	27	114	85	261	93	127	48	45	7	7	0	0	0
38	-0.01	76.23	768	0	0	2	3	9	14	46	54	106	61	170	89	105	63	61	18	30	5	7	0
39	-0.01	37.38	768	0	0	0	0	1	3	27	24	107	77	192	97	147	40	41	8	4	0	0	0
40	0.00	73.01	768	0	0	1	1	17	14	44	38	109	62	176	87	113	57	77	14	22	2	3	1
41	0.05	31.67	768	0	0	0	0	0	0	18	28	93	88	203	127	145	41	40	3	2	0	0	0
42	-0.00	72.09	768	0	0	3	2	12	10	53	28	106	67	134	72	127	31	74	32	15	6	4	0
43	-0.00	50.07	768	0	0	1	2	6	5	33	22	100	86	172	108	115	38	46	19	13	2	0	0
44	-0.00	56.40	768	0	0	1	4	8	9	37	27	82	72	169	82	118	36	64	10	15	2	2	0
45	-0.01	31.06	768	0	0	0	0	0	3	13	34	102	79	241	95	159	39	39	4	0	0	0	0
46	-0.00	65.59	768	0	0	0	2	8	9	49	44	103	66	142	91	134	42	64	19	20	4	1	0
47	-0.00	48.86	768	0	0	0	2	5	8	27	30	105	87	184	96	142	39	49	12	8	4	0	0
48	0.00	60.40	768	0	0	0	3	9	11	43	29	102	65	144	93	134	45	61	9	15	1	4	0
49	0.00	36.67	768	0	0	0	0	0	0	22	25	126	81	141	103	159	50	46	2	3	0	0	0
50	-0.00	129.30	768	1	1	15	6	31	20	62	30	89	53	105	40	110	39	70	19	40	11	16	6
51	0.01	51.90	768	0	0	0	2	6	8	36	34	94	69	175	86	131	45	56	12	12	1	1	0

CORRELATION VALUES FOR INPUT SLD 2
STARTING RANDOM NUMBER = 216414

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	0.00	59.19	768	0	0	0	0	8	16	39	37	94	64	163	80	132	43	56	18	15	1	2	0	
53	0.03	36.05	768	0	0	0	0	1	3	15	24	120	75	204	87	135	45	53	5	0	1	0	0	
54	-0.00	84.88	767	1	0	1	5	16	20	51	32	99	64	176	64	115	47	62	22	31	6	4	1	
55	-0.00	42.53	768	0	0	0	0	1	8	35	26	87	81	195	91	137	44	46	9	8	0	0	0	
56	0.01	80.03	768	0	0	3	5	13	13	54	38	93	61	133	64	123	40	71	24	21	6	6	0	
57	0.11	31.10	768	0	0	0	0	0	1	17	18	109	87	204	100	145	46	31	7	3	0	0	0	
58	0.00	83.90	768	0	0	4	3	20	14	46	33	106	67	114	59	94	55	54	23	32	0	4	0	
59	0.00	51.30	768	0	0	1	0	7	5	34	38	96	64	166	78	137	47	53	9	10	1	1	1	
60	0.00	59.42	767	0	0	1	2	6	11	33	49	91	78	152	66	139	57	47	20	10	4	0	1	
61	0.00	32.82	768	0	0	0	0	1	0	15	25	115	81	203	92	147	46	45	6	2	0	0	0	
62	-0.00	66.98	768	0	0	0	3	8	13	43	37	114	66	173	78	115	55	57	17	22	4	3	0	
63	-0.00	49.92	768	0	0	0	2	5	7	36	23	109	77	183	86	143	46	45	11	14	1	0	0	
64	-0.01	66.42	764	0	0	3	3	8	10	49	33	103	60	140	79	132	48	55	14	17	0	3	1	

CORRELATION VALUES FOR INPUT SEC 3
STARTING RANDOM NUMBER = 216041

SCORE * MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	16.83	45.12	723	0	0	0	0	0	0	0	0	0	0	1	16	56	38	122	56	159	82	161	32	
2	-0.00	85.59	768	0	0	0	0	16	19	80	30	104	58	100	63	97	51	84	33	30	2	1	0	
3	0.00	55.11	768	0	0	0	0	5	4	46	42	117	74	132	60	138	57	74	10	8	1	0	0	
4	0.00	55.73	768	0	0	0	1	2	5	41	51	113	74	131	65	135	58	67	15	7	3	0	0	
5	0.02	33.92	768	0	0	0	0	1	2	18	25	101	96	155	85	156	42	38	5	4	0	0	0	
6	-0.00	66.84	768	0	0	0	1	11	9	57	36	107	65	125	75	123	49	63	15	23	3	0	0	
7	0.00	34.94	768	0	0	0	0	1	3	17	27	107	90	164	85	150	48	37	5	4	0	0	0	
8	-0.00	66.61	768	0	0	0	0	9	16	48	42	107	53	144	64	123	52	60	[illegible]	19	2	0	0	
9	0.03	36.11	768	0	0	0	0	1	3	26	19	111	79	146	87	153	45	34	9	5	0	0	0	
10	-0.00	110.03	768	0	1	2	5	32	18	81	27	94	47	100	62	86	41	78	31	43	10	10	0	
11	-0.00	44.55	768	0	0	0	2	2	5	32	15	126	66	134	84	132	47	52	5	9	2	1	0	
12	-0.00	64.96	768	0	0	4	0	8	11	46	32	85	85	144	83	137	35	53	17	21	5	1	1	
13	-0.00	36.36	768	0	0	0	0	0	7	18	23	105	88	132	84	164	35	41	7	4	0	0	0	
14	-0.01	104.65	768	1	0	2	5	29	20	64	45	95	51	89	91	94	45	78	31	40	12	6	0	
15	-0.03	46.59	768	0	0	1	0	2	12	25	21	120	74	142	79	141	48	56	9	5	2	1	0	
16	0.01	68.55	767	0	1	2	1	13	12	43	28	109	69	146	86	114	51	67	17	23	3	1	1	
17	-0.06	45.42	768	0	0	0	0	0	3	23	35	126	89	165	76	107	49	45	14	13	2	1	0	

CORRELATION VALUES FOR INPUT SEQ . 3
STARTING RANDOM NUMBER = 216041.

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.00	83.26	768	0	0	0	6	22	8	59	39	85	69	131	64	108	47	73	17	26	8	6	0
19	0.01	54.15	768	0	0	0	2	5	9	32	36	98	79	175	66	134	44	63	11	10	1	2	1
20	-0.00	58.73	768	0	0	2	0	6	16	30	30	115	66	135	74	139	45	57	12	16	4	1	0
21	0.00	42.34	768	0	0	0	0	3	7	24	28	106	80	165	82	131	58	33	11	9	1	0	0
22	-0.00	81.05	767	0	1	3	3	14	9	59	40	106	63	113	71	103	54	77	16	25	4	5	1
23	-0.00	48.44	768	0	1	0	0	5	6	34	25	101	81	178	85	139	38	50	13	8	3	1	0
24	0.00	72.73	767	1	0	0	2	6	18	61	46	83	65	127	70	123	43	78	17	24	2	0	1
25	0.02	41.40	768	0	0	0	0	3	6	22	35	94	80	174	96	141	54	43	9	7	0	0	0
26	0.00	89.69	768	0	0	5	4	20	14	53	37	108	57	119	48	121	46	71	21	31	4	8	1
27	0.03	55.75	768	0	0	2	0	9	7	36	28	107	70	171	82	120	42	61	16	14	3	1	0
28	0.01	61.38	768	0	0	2	1	7	14	37	37	102	53	163	75	145	41	46	19	20	6	3	0
29	0.04	44.24	768	0	0	0	0	4	10	21	29	111	77	173	91	136	43	3	11	4	0	0	0
30	0.01	81.78	768	0	1	2	4	15	15	50	41	92	69	146	84	127	45	68	15	22	6	7	2
31	0.00	52.67	768	0	0	1	0	6	13	32	29	106	67	169	76	149	43	49	17	8	2	0	1
32	-0.00	71.01	767	0	0	1	2	6	15	53	41	103	70	131	73	103	51	70	22	21	4	1	0
33	-0.03	45.55	768	0	0	0	0	2	9	23	27	130	84	155	77	141	48	49	13	9	1	0	0
34	0.01	126.25	762	2	2	10	13	21	22	57	39	103	44	97	47	95	47	74	28	29	16	12	4

CORRELATION VALUES FOR INPUT SET 3
STARTING RANDOM NUMBER = 216041

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	-0.01	42.98	768	0	0	0	2	0	5	25	32	119	85	166	93	150	49	48	9	4	0	1	0	
36	-0.00	46.36	768	0	0	0	1	3	2	32	41	109	77	159	69	158	42	59	10	4	1	0	1	
37	0.03	40.50	768	0	0	0	0	1	4	25	30	111	82	169	97	139	48	46	11	5	0	0	0	
38	-0.00	74.67	768	0	0	0	2	15	16	43	39	111	68	170	7	109	63	53	21	22	4	5	0	
39	-0.01	42.65	768	0	0	0	0	3	6	26	24	114	83	172	85	149	39	50	12	5	0	0	0	
40	0.00	73.32	767	0	0	2	2	15	10	49	42	101	63	164	85	117	46	6	14	18	6	1	0	
41	0.07	31.07	768	0	0	0	0	2	2	7	26	112	91	177	98	169	39	67	4	4	0	0	0	
42	-0.00	38.65	767	1	1	1	6	18	22	45	30	94	68	1	3	115	42	57	18	31	11	4	1	
43	-0.00	45.63	768	0	0	0	1	2	4	35	25	113	75	140	78	133	57	47	7	10	1	0	0	
44	0.00	54.63	768	0	0	0	1	6	6	40	37	97	81	142	73	145	39	68	8	14	1	1	1	
45	-0.01	35.07	768	0	0	1	0	1	6	19	23	99	83	193	141	153	47	35	3	2	1	1	0	
46	0.00	81.61	767	0	0	3	2	23	9	46	37	104	60	142	75	109	50	57	24	32	6	2	1	
47	0.00	48.17	768	0	0	0	0	3	10	36	28	100	71	146	81	124	58	50	11	8	1	1	0	
48	0.00	64.80	768	0	0	0	4	10	12	46	32	99	75	146	66	127	66	53	16	21	2	1	0	
49	0.13	49.79	768	0	0	0	0	7	14	40	36	84	62	137	72	201	64	46	14	3	0	0	1	
50	-0.00	101.67	765	2	1	2	5	24	20	58	33	89	56	135	44	118	41	53	35	30	11	8	0	
51	0.01	50.11	768	0	0	1	0	3	11	31	32	110	78	147	93	148	46	59	8	9	1	1	0	

CORRELATION VALUES FOR INPUT SLO 3
STARTING RANDOM NUMBER = 716041

SCORE = MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	0.00	55.86	764	0	0	0	2	3	11	28	48	102	78	162	98	127	62	52	20	11	2	2	0	
53	0.01	41.84	766	0	0	0	0	3	2	31	29	101	90	173	86	136	55	48	9	4	1	0	0	
54	-0.00	80.38	767	0	0	4	5	12	11	53	44	102	63	121	95	124	52	64	25	21	8	3	0	
55	-0.02	44.65	768	0	0	1	0	2	4	35	21	109	85	174	92	142	40	53	11	9	0	0	0	
56	0.01	73.36	765	0	0	1	2	16	15	43	37	107	55	143	93	124	47	72	15	20	4	4	0	
57	0.03	37.94	766	0	0	0	0	1	4	20	32	98	90	176	98	155	41	40	3	8	1	1	0	
58	-0.01	73.98	768	0	1	2	2	15	13	49	29	96	77	143	97	130	38	64	23	19	7	2	1	
59	-0.02	47.50	768	0	0	0	1	6	4	29	36	104	71	169	91	142	42	50	13	8	2	0	0	
60	0.00	53.30	767	0	0	0	1	6	12	35	32	106	65	163	87	131	52	51	15	9	0	2	0	
61	-0.04	38.65	768	0	0	0	1	6	3	19	25	96	88	208	87	136	48	40	5	5	0	0	1	
62	-0.00	66.98	768	0	0	1	2	15	12	39	32	107	71	148	73	116	47	61	13	23	6	2	0	
63	0.00	49.51	768	0	0	0	1	6	4	37	27	101	76	161	79	123	54	58	12	8	1	0	0	
64	-0.01	64.59	768	0	0	1	4	12	12	42	35	98	63	145	82	121	54	58	18	20	2	1	0	

CORRELATION VALUES FOR INPUT SLO
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	16.31	28.54	753	0	0	0	0	0	0	0	0	0	0	0	6	28	97	115	83	268	97	70	39	
2	-0.00	44.04	768	0	0	0	0	1	1	37	40	104	79	172	78	132	45	69	8	2	0	0	0	
3	-0.00	43.60	768	0	0	0	0	4	5	26	31	112	83	178	74	137	56	46	7	8	1	0	0	
4	-0.01	44.39	768	0	0	0	0	3	8	29	24	120	79	169	89	151	43	56	6	9	2	0	0	
5	-0.00	35.70	768	0	0	0	0	0	2	27	28	95	81	205	90	146	42	44	7	1	0	0	0	
6	0.00	55.64	768	0	0	1	1	6	9	39	31	101	74	169	79	121	55	57	8	12	2	2	1	
7	-0.01	36.24	768	0	0	0	0	0	2	25	24	112	82	139	92	130	46	66	8	2	0	0	0	
8	0.00	54.93	768	0	0	1	3	6	4	41	24	110	70	174	75	130	39	66	8	12	3	2	0	
9	-0.02	39.47	768	0	0	0	0	2	5	28	24	99	96	180	84	155	40	40	7	7	1	0	0	
10	-0.00	103.33	767	0	1	6	9	15	25	62	35	90	58	139	82	103	45	74	26	32	5	13	2	
11	0.00	50.81	768	0	0	0	1	4	8	37	26	113	75	142	63	137	41	90	16	13	2	0	0	
12	-0.00	63.41	768	0	0	1	2	7	14	42	36	85	85	159	66	123	48	96	14	23	3	2	0	
13	0.01	40.20	768	0	0	0	0	4	3	30	23	97	95	180	65	150	47	42	5	5	2	0	0	
14	0.00	106.18	767	0	1	6	9	20	24	59	31	92	60	119	94	98	34	67	32	38	8	7	4	
15	-0.00	51.87	768	0	0	0	0	6	7	36	31	111	74	168	63	116	51	95	18	11	1	0	0	
16	-0.00	67.77	768	0	0	1	1	13	12	47	32	102	67	141	73	121	53	86	12	20	3	4	0	
17	-0.06	41.12	764	0	0	0	0	4	5	21	25	103	97	156	75	148	39	41	12	5	1	1	0	

CORRELATION VALUES FOR INPUT SEQ = 9
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.00	85.60	768	0	0	2	2	18	21	60	30	104	54	127	50	119	53	59	30	26	8	5	0
19	-0.00	67.95	768	0	0	1	0	13	11	51	36	104	66	131	71	123	52	68	18	17	4	2	0
20	0.00	76.35	768	0	0	0	1	18	22	45	20	129	63	128	46	119	40	65	23	26	0	1	0
21	-0.02	42.81	768	0	0	0	0	5	2	28	24	111	90	177	82	143	40	47	14	3	1	1	0
22	0.00	71.41	768	0	0	3	1	20	11	36	30	97	70	140	69	125	37	63	12	23	5	6	0
23	-0.01	51.22	768	0	0	0	0	5	5	43	36	90	91	155	76	149	43	48	16	6	3	2	0
24	0.00	73.58	768	0	1	0	2	13	14	48	32	119	57	149	67	117	52	69	19	23	1	4	1
25	-0.03	35.87	768	0	0	0	0	3	1	19	26	104	101	179	81	152	45	34	8	5	0	0	0
26	0.00	85.47	767	0	0	5	2	16	14	62	36	90	70	127	62	100	54	62	24	33	6	4	0
27	0.01	65.33	768	0	0	2	2	5	11	54	30	111	61	146	74	115	48	66	20	15	4	2	0
28	0.00	72.52	768	0	0	1	1	8	15	53	37	114	65	140	46	112	51	72	24	22	4	3	0
29	0.02	43.81	768	0	0	0	0	3	5	36	24	102	76	146	74	148	47	51	10	5	0	1	0
30	0.01	67.70	768	0	0	0	4	15	15	35	36	91	71	151	77	134	42	51	12	23	8	3	0
31	0.00	52.35	768	0	0	0	0	5	6	48	30	100	71	143	79	142	47	47	15	13	2	0	0
32	-0.01	66.99	768	0	0	1	1	8	15	45	30	118	68	140	71	111	48	67	16	22	3	4	0
33	-0.25	43.49	768	0	0	0	2	9	7	27	17	103	87	160	85	163	42	29	8	9	0	0	0
34	0.01	75.62	768	0	0	0	1	16	14	49	42	115	62	119	89	117	63	72	19	23	4	3	0

CORRELATION VALUES FOR INPUT SEQ. 4
STARTING RANDOM NUMBER = 716041.

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	-0.01	64.72	767	0	0	1	3	11	13	33	38	110	73	139	82	132	51	42	20	14	4	1	0	
36	-0.00	66.45	767	0	0	1	2	8	12	49	32	98	77	142	70	127	44	70	12	15	6	1	1	
37	-0.00	65.33	768	0	0	0	0	4	9	24	32	106	77	132	80	144	47	41	10	10	1	1	0	
38	0.00	67.02	768	0	1	1	2	6	15	41	40	98	80	138	70	120	52	59	20	16	7	2	0	
39	0.01	68.91	768	0	0	0	1	5	4	41	27	89	91	140	89	144	46	45	13	12	1	0	0	
40	0.01	66.43	767	0	0	3	1	9	10	47	38	98	71	149	67	116	56	60	21	17	3	1	0	
41	-0.02	64.06	767	0	0	0	0	6	11	43	28	105	69	137	89	152	48	60	9	7	1	2	0	
42	-0.00	71.24	768	0	0	3	1	8	13	57	39	92	73	124	73	120	55	59	20	27	3	1	0	
43	0.01	58.27	767	0	0	2	0	9	9	39	27	106	66	160	73	139	48	57	11	17	1	1	0	
44	-0.01	65.45	768	0	0	3	1	7	10	54	27	102	72	148	85	129	50	65	14	11	6	4	0	
45	-0.02	52.24	768	0	0	0	1	7	2	38	34	105	84	143	76	124	45	61	14	13	0	1	0	
46	0.00	62.72	768	0	1	1	3	16	20	54	33	104	59	145	85	108	46	69	23	36	4	3	0	
47	0.02	57.37	768	0	1	0	0	6	7	42	27	115	77	154	65	132	50	60	13	15	1	3	0	
48	0.00	70.35	768	0	0	3	3	10	9	44	35	112	72	135	85	130	48	65	16	23	7	1	0	
49	-0.08	43.86	768	0	0	0	0	4	4	29	17	108	89	213	74	137	36	32	9	6	6	4	0	
50	-0.00	65.27	768	0	0	0	0	11	17	40	39	110	62	142	68	115	53	69	22	16	3	1	0	
51	0.02	69.58	768	0	0	1	2	8	14	46	42	103	69	131	83	131	44	69	18	19	6	2	0	

CORRELATION VALUES FOR INPUT SEQ = *
STARTING RANDOM NUMBER = 216041.

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	-0.00	73.97	768	0	0	0	3	15	14	54	30	102	69	121	73	125	40	76	14	23	6	3	0
53	0.03	48.60	768	0	0	0	0	6	8	28	23	121	78	166	78	129	54	62	6	5	3	0	1
54	0.00	77.29	768	0	0	7	2	15	13	43	35	85	77	149	64	115	54	56	18	21	7	6	1
55	-0.00	52.47	768	0	0	0	1	5	6	41	30	108	82	152	66	151	45	56	9	13	3	0	0
56	0.01	77.33	767	0	1	5	0	12	13	48	38	97	70	148	63	107	50	58	16	29	8	3	1
57	0.11	46.36	768	0	0	1	0	5	6	25	26	109	82	163	66	138	51	57	8	10	1	0	0
58	0.00	53.81	768	0	0	0	1	8	8	43	26	98	75	169	62	111	55	68	14	7	3	0	0
59	0.00	64.35	768	1	0	0	0	10	10	48	34	96	86	134	69	124	43	66	22	15	4	2	0
60	-0.00	66.39	767	0	0	1	0	11	15	51	27	112	65	140	66	123	49	72	13	18	3	1	0
61	0.02	50.66	768	0	0	0	1	2	5	47	24	108	79	167	65	137	54	65	13	10	1	0	0
62	-0.00	59.24	768	0	1	1	0	13	6	43	28	102	71	147	71	141	61	65	12	13	3	0	0
63	-0.00	57.93	768	0	0	2	1	6	4	43	32	110	74	170	73	96	57	69	11	16	3	0	1
64	-0.02	65.16	768	0	0	1	1	12	13	49	29	92	78	156	64	124	39	74	15	13	6	2	0

CORRELATION VALUES FOR INPUT SEQ = 5
STARTING RANDOM NUMBER = 2160414

SCORE = MAC COOL	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	17.32	35.86	713	0	0	0	0	0	0	0	0	0	0	0	0	15	40	146	104	174	60	142	32	
2	0.00	71.30	768	0	0	0	0	8	14	67	37	108	58	120	64	119	51	76	22	21	2	1	0	
3	0.02	65.88	768	0	0	0	1	10	10	47	50	97	58	152	69	108	44	82	23	13	3	1	0	
4	0.01	66.93	768	0	0	0	1	9	9	56	39	101	59	151	72	108	40	81	20	17	4	1	0	
5	0.05	46.03	768	0	0	0	1	3	4	39	23	87	88	142	101	129	38	51	14	5	2	1	0	
6	-0.01	60.16	768	0	0	0	0	8	18	38	29	103	65	168	74	127	38	63	15	21	1	0	0	
7	-0.02	45.70	768	0	0	0	2	5	4	34	27	88	83	166	85	137	34	47	19	5	0	2	0	
8	0.00	58.91	768	0	0	0	0	9	13	39	33	102	72	162	89	137	38	53	19	21	0	1	0	
9	0.10	52.10	768	0	0	0	1	9	5	33	34	93	74	179	76	145	38	47	16	15	3	0	0	
10	0.00	66.99	768	0	0	0	1	8	14	51	40	102	74	169	82	129	46	69	23	14	4	2	0	
11	-0.01	54.28	768	0	0	1	0	6	11	34	33	111	66	173	84	121	37	64	8	16	2	1	0	
12	0.00	59.07	768	0	0	0	1	8	7	46	40	91	71	169	77	127	43	64	15	14	3	2	0	
13	0.01	51.43	768	0	0	0	0	9	8	31	31	104	71	171	90	127	42	56	11	15	1	1	0	
14	0.00	66.22	768	0	0	0	0	12	10	51	38	97	77	135	61	131	47	67	17	21	2	2	0	
15	-0.02	56.72	768	0	0	0	1	10	8	39	36	94	72	169	87	116	41	62	13	18	1	1	0	
16	-0.01	62.51	768	0	0	0	3	8	11	45	42	93	67	152	75	115	61	61	15	16	4	0	0	
17	0.10	63.65	768	0	0	1	2	11	10	33	45	96	77	143	72	120	54	70	15	12	5	1	1	

CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.00	69.45	768	0	0	2	1	11	12	45	42	100	73	131	79	114	47	57	25	23	3	3	0
19	0.01	65.78	767	0	0	2	3	7	12	44	37	93	66	154	91	116	39	59	19	18	5	2	0
20	-0.00	61.74	768	0	0	2	0	12	9	39	34	89	73	170	86	121	39	52	17	19	3	2	1
21	0.01	58.22	768	0	0	0	2	7	10	35	37	109	62	159	80	131	46	38	14	11	4	3	0
22	0.01	62.34	768	0	0	2	1	6	11	41	38	107	68	152	61	134	47	66	13	16	3	2	0
23	-0.00	51.30	768	0	0	0	0	8	12	26	30	99	89	169	81	129	47	47	16	13	2	0	0
24	0.00	51.51	768	0	0	2	1	3	5	36	35	105	63	189	76	119	48	63	9	11	1	2	0
25	0.02	59.98	768	0	1	2	3	8	5	31	41	103	67	163	89	122	39	55	14	21	2	2	0
26	-0.01	70.09	768	0	1	1	1	12	13	40	42	107	62	145	99	133	43	61	20	22	3	3	0
27	0.00	64.14	768	0	0	1	2	12	12	33	29	109	71	164	76	116	41	93	17	28	2	1	1
28	0.00	60.93	768	0	0	1	2	10	8	41	34	100	60	167	92	119	38	98	13	17	7	1	0
29	0.03	59.52	768	0	0	1	0	14	7	34	40	91	72	163	90	120	48	80	12	16	8	2	0
30	0.01	66.70	764	0	1	1	5	10	8	38	34	107	72	151	70	115	49	71	15	13	4	3	1
31	0.02	54.45	768	0	0	0	0	5	11	40	30	102	80	160	72	134	48	82	19	13	0	2	0
32	-0.00	55.49	768	0	0	0	2	7	5	38	43	94	73	165	75	138	45	53	11	14	2	3	0
33	0.09	46.02	768	0	0	0	0	0	1	33	34	121	58	177	89	135	51	87	16	10	2	4	0
34	0.01	94.82	768	0	0	1	2	19	18	80	49	82	47	117	48	95	38	95	36	33	3	5	0

CORRELATION VALUES FOR INPUT SEQ 5
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	0.00	67.32	768	0	0	1	3	8	11	45	36	115	60	134	71	129	58	68	14	16	4	3	2	
36	-0.00	72.11	768	0	0	3	0	19	8	42	43	105	72	130	63	128	51	73	15	16	5	5	0	
37	0.01	62.59	768	0	0	0	0	5	4	28	27	102	80	124	68	138	38	67	12	4	0	1	0	
38	0.00	69.55	768	0	1	0	2	15	14	46	32	91	58	145	72	128	43	53	16	19	10	3	0	
39	-0.00	62.43	768	0	0	0	0	2	6	33	23	99	80	137	64	131	47	48	10	7	0	1	0	
40	0.01	72.80	768	0	0	2	1	12	16	53	23	101	57	154	71	125	52	55	16	16	5	9	0	
41	0.03	56.43	768	0	0	0	2	10	9	37	32	99	65	167	65	127	52	54	12	11	3	7	1	
42	0.01	61.97	768	0	0	0	4	5	13	42	35	97	78	143	73	135	43	64	22	6	4	4	0	
43	0.01	48.18	768	0	0	0	1	9	6	26	25	109	73	178	83	146	49	40	7	10	4	2	0	
44	0.00	54.47	768	0	0	1	3	4	6	37	26	106	70	169	93	125	43	55	12	9	4	2	1	
45	0.01	52.95	768	0	0	0	2	8	11	33	27	102	69	153	102	144	44	46	12	10	3	2	0	
46	0.00	63.49	768	0	0	2	0	12	13	36	37	91	64	170	78	131	42	51	13	17	7	3	1	
47	0.00	53.99	768	0	0	1	1	7	6	35	31	101	79	171	84	131	40	51	12	12	1	5	0	
48	0.00	67.53	767	1	0	3	2	11	10	41	34	98	62	141	80	128	51	52	24	12	2	5	0	
49	0.15	56.99	768	0	0	0	0	9	15	26	36	101	71	160	79	128	48	67	11	12	4	1	0	
50	-0.01	72.64	768	0	0	2	2	11	10	46	48	117	53	127	55	127	56	73	15	13	6	7	0	
51	0.00	56.05	768	0	0	0	1	9	10	31	42	95	69	164	78	133	51	52	14	15	2	2	0	

CORRELATION VALUES FOR INPUT SLO 5
STARTING RANDOM NUMBER = 216041.

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	0.00	59.84	768	0	0	0	0	13	4	41	38	100	71	150	86	128	43	58	15	18	1	2	0	
53	0.02	45.11	768	0	0	0	1	2	2	34	32	105	70	184	93	128	50	48	6	11	1	1	0	
54	-0.01	68.32	768	0	1	2	2	16	13	30	36	89	76	160	85	115	47	50	18	17	5	4	0	
55	-0.03	42.45	768	0	0	0	0	0	3	27	29	131	78	163	90	145	38	42	12	6	3	1	0	
56	0.00	68.24	768	0	1	3	2	9	17	32	46	90	62	136	87	117	47	60	10	19	4	3	3	
57	0.04	62.78	768	0	0	2	3	14	14	38	34	84	69	137	71	150	57	69	20	5	1	0	0	
58	-0.00	56.07	768	0	0	2	1	8	8	35	31	101	77	158	82	129	50	56	13	13	2	2	0	
59	-0.01	48.53	768	0	0	0	1	6	4	32	32	97	82	166	77	125	48	55	13	7	2	1	0	
60	-0.00	54.41	768	0	0	0	1	7	11	34	23	115	67	179	75	119	48	61	12	12	2	2	0	
61	-0.03	54.18	768	0	0	0	2	4	8	44	34	92	78	171	75	127	42	60	17	14	0	0	0	
62	0.00	62.72	767	0	0	2	1	10	9	40	40	101	58	148	85	134	42	59	19	15	1	3	0	
63	0.02	55.47	768	0	0	0	2	2	12	41	34	107	71	145	88	122	50	70	11	8	4	1	0	
64	-0.01	70.51	768	0	0	1	0	14	12	53	38	96	60	145	72	118	55	63	10	21	5	3	2	

CORRELATION VALUES FOR INPUT SEQ 6
STARTING RANDOM NUMBER = 216041.

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	12.11	100.99	711	0	0	0	0	0	0	1	5	21	24	74	44	90	35	109	54	78	91	105	20	
2	0.00	60.69	768	0	0	0	0	21	20	21	11	98	87	179	66	160	30	22	12	37	3	1	0	
3	0.02	40.44	768	0	0	0	0	1	3	26	39	102	71	200	77	130	48	62	5	4	0	0	0	
4	-0.00	40.78	768	0	0	0	0	2	1	27	36	107	82	170	82	117	50	65	5	4	0	0	0	
5	0.02	46.42	768	0	0	0	0	4	6	35	19	121	77	161	79	153	45	50	8	8	0	2	0	
6	-0.01	80.05	768	0	1	8	3	15	12	27	33	119	69	179	89	132	52	47	16	16	7	10	1	
7	-0.01	44.05	768	0	0	0	1	4	5	35	31	113	79	159	76	140	52	51	10	10	2	0	0	
8	-0.00	80.01	767	0	1	6	8	9	13	34	26	107	87	151	67	132	46	49	14	18	6	11	2	
9	0.09	45.77	768	0	0	0	0	3	6	31	39	69	76	178	74	154	57	42	9	10	0	0	0	
10	-0.00	77.40	768	0	1	2	0	14	20	44	32	105	82	121	99	129	48	67	23	19	7	4	1	
11	-0.00	49.86	768	0	0	0	0	4	9	35	30	107	77	172	68	139	51	50	9	15	2	0	0	
12	0.00	59.65	768	0	0	0	0	10	8	45	35	110	68	153	69	115	48	75	19	12	0	1	0	
13	-0.02	43.55	768	0	0	0	1	4	5	24	35	105	81	142	73	150	55	34	9	4	2	0	0	
14	-0.00	76.80	768	0	0	2	4	13	11	52	39	94	74	167	65	122	52	59	16	28	2	7	1	
15	-0.02	49.92	768	0	0	0	0	4	7	41	25	102	93	161	77	134	50	48	9	14	3	0	0	
16	0.00	61.34	768	0	0	0	1	11	8	46	39	101	75	137	63	136	50	63	22	13	3	0	0	
17	0.12	48.51	768	0	0	0	0	7	10	28	21	99	83	157	80	124	53	53	7	13	2	1	0	

CORRELATION VALUES FOR INPUT SEQ. 6
STARTING RANDOM NUMBER = 2160414

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.00	66.61	767	0	0	5	2	9	10	44	23	106	76	147	70	133	51	51	19	11	5	5	0	
19	0.01	63.03	768	0	0	0	2	11	12	40	37	95	71	159	66	118	64	54	13	19	7	0	0	
20	-0.01	67.03	768	0	0	0	1	10	19	43	37	101	73	142	56	127	48	70	13	21	5	2	0	
21	0.01	44.92	768	0	0	0	0	3	7	30	28	108	70	190	74	148	38	51	9	11	1	0	0	
22	-0.00	61.55	768	0	0	2	1	10	13	35	36	94	81	165	63	111	62	57	15	20	1	1	1	
23	-0.00	51.21	768	0	0	0	0	2	8	41	34	114	63	186	69	134	59	55	13	7	2	1	0	
24	0.00	64.76	768	0	0	0	0	11	7	55	31	112	64	141	71	116	61	63	15	20	2	1	2	
25	0.04	49.94	768	0	0	0	0	7	8	39	27	80	80	124	83	132	49	49	11	15	4	0	0	
26	0.00	61.82	768	1	0	2	2	8	7	38	28	108	84	146	71	133	50	51	19	11	3	5	1	
27	0.02	63.28	768	0	0	0	2	12	11	40	38	96	71	156	65	130	46	59	17	22	1	2	0	
28	-0.00	67.07	768	0	0	0	1	11	12	55	37	85	70	155	68	114	51	65	13	19	8	1	0	
29	0.04	47.21	768	0	0	0	0	4	7	33	29	93	84	161	83	139	42	50	12	8	3	0	0	
30	0.00	59.43	768	0	0	0	1	8	14	38	33	99	74	150	66	131	50	61	15	13	3	1	1	
31	0.00	55.09	768	0	0	0	1	9	10	39	30	106	73	148	72	137	58	65	10	8	1	1	0	
32	-0.00	61.76	768	0	0	1	0	7	16	48	23	104	75	147	78	117	55	61	15	17	2	2	0	
33	0.24	78.03	768	0	0	0	0	14	14	60	39	103	57	119	63	117	49	79	19	23	6	6	0	
34	0.01	100.55	768	0	0	0	3	35	23	62	24	91	60	141	47	111	39	62	30	39	16	5	0	

CORRELATION VALUES FOR INPUT SEQ. 6
STARTING RANDOM NUMBER = 2160414

SCALE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	-0.00	62.38	768	0	0	0	1	8	12	48	35	110	63	145	70	120	58	96	11	17	4	0	0	
36	-0.01	62.67	768	0	0	0	0	6	13	46	30	120	73	146	77	117	51	74	10	22	3	0	0	
37	0.04	51.57	768	0	0	0	1	4	6	39	33	112	68	134	78	141	50	59	12	8	2	1	0	
38	0.00	78.65	766	0	1	4	2	21	8	41	35	99	78	136	61	114	56	64	16	18	6	5	1	
39	0.00	82.57	768	0	0	1	1	3	5	44	22	115	80	151	79	143	35	63	15	8	2	1	0	
40	-0.00	78.65	768	0	0	3	4	15	7	51	38	94	65	143	66	118	61	57	15	18	3	7	3	
41	0.00	53.59	768	0	0	0	0	3	7	37	36	110	86	134	73	122	44	69	8	13	3	1	0	
42	-0.01	81.50	767	1	2	3	3	13	14	45	31	111	63	136	61	130	55	56	20	21	1	9	3	
43	-0.01	59.05	766	0	1	1	0	9	8	45	20	123	64	143	66	125	50	67	16	11	2	1	0	
44	0.01	62.46	768	0	0	1	1	9	15	42	29	98	81	150	69	117	58	64	12	18	4	0	0	
45	-0.02	51.69	765	0	0	1	0	4	9	40	27	107	78	165	69	138	52	58	11	6	1	2	0	
46	-0.00	76.40	764	0	1	2	2	17	13	45	37	100	68	139	64	111	56	79	20	17	2	2	1	
47	0.01	56.28	768	0	0	1	1	4	6	36	41	112	69	150	79	128	62	47	12	16	1	2	1	
48	-0.01	59.32	768	0	0	1	2	5	14	39	40	94	69	163	68	135	62	57	10	13	4	2	0	
49	0.10	51.41	764	0	0	0	0	5	8	35	25	113	82	150	73	147	59	46	6	13	5	1	0	
50	-0.00	49.13	767	0	0	4	5	23	15	42	29	113	70	112	69	126	54	63	16	23	15	5	1	
51	-0.00	58.63	767	0	0	1	0	10	8	38	36	103	76	136	74	134	47	49	13	20	2	1	0	

CORRELATION VALUES FOR INPUT SLO 6
STARTING RANDOM NUMBER = 2160414

SCORE = 0.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	0.00	60.42	768	0	0	0	2	7	14	38	33	110	71	160	55	135	54	30	18	14	4	3	0	
53	0.04	50.52	768	0	0	0	0	4	9	39	32	109	60	171	69	146	49	59	11	7	1	2	0	
54	0.00	71.40	766	1	0	3	3	13	8	45	30	103	74	138	73	127	54	51	12	23	5	3	0	
55	-0.01	52.38	768	0	0	1	0	5	2	47	26	112	82	156	72	130	46	60	19	6	3	1	0	
56	-0.00	69.82	767	1	1	0	2	10	17	39	35	96	72	161	60	115	57	60	15	17	4	4	1	
57	0.13	47.24	768	0	0	0	0	5	5	29	25	122	84	149	64	137	49	58	12	9	0	0	0	
58	-0.01	72.42	765	0	0	5	3	15	5	43	26	105	69	156	64	124	53	55	12	18	4	5	1	
59	-0.01	66.80	767	0	0	0	3	10	13	44	30	111	74	145	53	130	53	60	18	17	4	1	1	
60	-0.00	67.21	767	0	0	2	1	10	12	55	29	92	63	166	53	130	36	58	16	18	3	3	0	
61	-0.02	49.44	768	0	0	0	1	5	4	48	17	98	86	170	53	128	53	52	13	7	3	0	0	
62	-0.00	65.32	768	0	0	1	2	8	14	39	32	107	80	148	63	126	49	52	21	19	2	5	0	
63	-0.02	58.69	764	2	0	0	1	1	5	52	34	96	85	158	71	126	44	36	17	14	3	3	0	
64	0.00	60.98	767	0	2	0	0	6	9	41	30	110	80	165	58	126	42	56	18	20	3	1	0	

CORRELATION VALUES FOR INPUT SEQ. 7
STARTING RANDOM NUMBER = 216041

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	0.03	85.79	768	0	0	0	1	16	9	18	14	33	40	71	83	150	71	130	39	87	30	14	2	
2	0.00	68.35	768	0	0	0	0	10	18	51	30	115	65	119	77	125	47	59	24	26	2	0	0	
3	0.02	56.71	768	0	0	0	2	8	11	38	27	100	70	166	97	118	45	51	15	16	3	1	0	
4	0.01	57.33	768	0	0	0	3	8	9	37	28	100	71	170	87	128	36	54	15	17	4	1	0	
5	0.03	56.04	767	0	0	2	2	4	8	28	42	112	72	148	85	129	50	56	15	10	3	1	0	
6	-0.02	82.33	767	0	1	5	2	13	17	48	51	95	54	143	72	105	43	72	26	16	7	6	1	
7	-0.03	56.06	768	0	1	1	2	7	7	30	36	116	72	141	83	133	59	54	9	10	2	2	1	
8	-0.00	79.19	767	0	0	3	3	15	7	58	45	89	59	142	79	93	47	72	22	22	4	7	0	
9	0.01	49.25	768	0	0	0	0	4	4	35	35	113	70	172	79	124	47	55	19	10	0	1	0	
10	-0.01	54.12	768	0	1	1	1	4	10	33	25	114	68	178	83	129	31	62	10	11	6	1	0	
11	-0.02	47.27	768	0	0	0	0	3	6	36	32	118	72	150	85	145	46	57	11	6	0	1	0	
12	-0.00	54.40	768	0	0	0	1	5	9	41	35	103	63	173	72	123	48	67	18	8	1	1	0	
13	-0.03	49.31	768	0	0	0	0	4	7	30	41	112	66	164	81	140	44	56	10	11	2	0	0	
14	0.00	56.94	768	0	0	1	0	11	6	36	33	106	65	167	92	110	49	61	11	14	3	3	0	
15	0.02	47.96	768	0	0	0	0	2	4	36	38	110	86	141	92	148	48	49	14	8	1	1	0	
16	0.02	56.58	768	0	0	1	1	4	9	36	42	115	63	157	70	119	58	64	15	11	3	0	0	
17	0.02	59.15	768	0	0	0	1	14	9	38	24	102	60	176	84	120	42	65	12	13	6	2	0	

CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.00	63.02	768	0	0	0	2	8	9	48	39	110	58	146	66	121	55	73	15	13	3	2	0
19	-0.02	62.04	768	0	0	1	2	14	11	34	33	99	63	101	73	151	38	51	14	13	3	7	0
20	0.01	60.08	768	1	0	2	1	8	10	33	26	119	64	163	75	136	44	48	17	14	3	3	1
21	-0.03	62.25	768	0	0	0	2	6	11	51	38	104	70	149	76	136	46	67	15	12	3	2	0
22	0.00	76.54	768	0	0	3	3	14	13	46	33	108	66	149	75	124	38	57	21	26	6	5	1
23	-0.00	57.10	768	0	0	0	0	6	13	39	34	111	63	156	70	136	54	52	17	16	1	0	0
24	0.00	67.48	768	0	0	1	2	8	20	42	31	101	57	138	77	128	44	51	19	20	6	2	1
25	0.01	56.17	768	0	0	1	1	8	6	37	30	107	78	173	72	129	26	45	18	13	0	4	0
26	-0.01	68.62	768	0	0	0	3	13	12	40	38	115	56	149	70	119	42	63	20	20	6	2	0
27	0.00	61.69	768	0	0	2	4	6	14	38	28	101	58	166	67	137	43	48	10	19	3	4	0
28	0.00	59.15	768	0	0	2	2	7	6	39	32	103	75	160	85	119	50	52	17	12	2	4	1
29	0.01	69.19	768	0	0	2	1	8	11	49	39	110	56	136	63	117	41	63	22	24	5	1	0
30	-0.00	78.73	768	0	2	1	2	15	13	53	35	104	61	147	72	108	48	74	19	22	5	6	1
31	0.00	62.33	768	0	0	0	1	6	13	53	39	85	63	158	91	110	41	59	18	20	0	1	0
32	0.00	65.63	768	0	0	0	3	12	11	36	37	120	55	144	83	110	50	63	18	21	3	1	1
33	-0.00	72.29	768	0	0	0	0	14	11	43	21	105	89	162	70	98	28	41	19	26	7	10	4
34	0.01	89.62	768	0	0	6	6	20	10	45	35	117	58	114	67	115	39	78	16	19	10	11	2

CORRELATION VALUES FOR INPUT SEQ 7
STATISTICAL RANDOM NUMBERS = 2160+1

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	0.00	72.40	766	2	1	0	3	10	11	45	34	111	62	127	80	132	46	57	21	18	4	1	1	
36	0.00	72.40	765	2	0	1	3	12	10	37	46	107	60	140	72	114	51	57	21	17	3	2	0	
37	0.03	54.19	768	0	0	1	1	7	6	36	41	85	70	174	47	133	45	44	16	14	2	2	0	
38	-0.01	90.77	764	2	1	4	4	12	13	57	51	93	56	111	79	108	45	73	16	26	8	5	0	
39	-0.01	53.35	768	0	0	0	2	7	7	36	37	93	76	186	65	138	40	53	13	13	1	1	0	
40	0.00	79.08	767	1	0	4	4	15	9	36	46	111	51	143	87	128	46	62	23	22	2	6	1	
41	0.04	60.94	768	1	0	2	0	8	9	39	31	108	68	153	84	131	45	54	13	15	2	4	1	
42	0.01	67.65	767	1	0	5	2	10	11	30	33	111	57	146	82	119	40	58	14	19	5	2	2	
43	0.02	52.25	768	0	0	1	0	9	5	33	34	85	74	185	86	118	46	48	12	14	3	2	0	
44	0.01	56.00	768	0	0	1	0	6	15	33	32	102	65	172	85	135	35	46	20	14	3	2	0	
45	0.03	61.25	768	0	1	0	2	7	11	36	53	89	64	166	99	131	43	62	11	15	3	1	2	
46	0.00	68.58	767	1	0	1	4	8	14	45	26	101	67	157	77	115	50	61	15	15	4	5	1	
47	0.01	51.35	768	0	0	1	1	8	5	35	33	93	74	178	84	134	40	55	14	12	1	0	0	
48	0.00	56.94	768	0	0	1	1	6	3	43	47	68	80	161	76	128	44	55	12	18	4	1	0	
49	0.16	74.10	768	0	0	0	0	16	11	51	43	87	64	150	84	120	41	67	23	16	8	5	2	
50	-0.00	63.79	768	0	0	0	3	7	11	43	42	108	72	140	78	130	52	67	15	14	2	3	0	
51	-0.01	70.06	767	1	0	2	3	9	8	49	31	108	61	155	93	105	42	64	17	22	3	2	2	

CORRELATION VALUES FOR INPUT SEQ. 7
STARTING RANDOM NUMBER = 216041.

SCORE = 0.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	-0.01	68.48	768	1	0	1	3	12	12	46	28	98	61	164	80	127	42	71	14	16	3	4	1	
53	0.00	52.23	767	0	0	0	0	5	11	33	37	96	64	146	83	137	42	44	12	12	4	1	0	
54	0.00	78.98	768	1	0	0	2	15	18	55	35	106	61	162	85	114	53	71	15	23	7	4	1	
55	0.00	48.46	768	0	0	1	0	7	4	25	35	107	73	172	80	140	36	52	17	5	1	3	0	
56	0.00	68.21	768	0	0	1	0	14	13	44	34	106	63	153	92	120	46	70	18	20	1	3	0	
57	0.01	63.35	768	1	0	3	5	12	6	33	45	80	62	159	98	136	36	51	19	19	2	1	0	
58	-0.02	69.02	767	1	1	0	4	13	13	27	43	97	69	157	93	109	40	55	12	20	7	5	1	
59	-0.01	56.33	768	0	0	2	1	6	10	31	34	110	72	140	77	142	37	50	16	15	1	4	0	
60	-0.00	56.75	768	0	0	1	1	8	6	41	32	115	57	166	67	145	41	53	18	12	2	3	0	
61	-0.02	62.29	767	1	1	2	1	6	12	26	43	111	75	142	85	131	32	61	17	15	3	3	0	
62	0.00	72.71	767	0	0	3	0	13	10	49	35	107	66	142	92	117	39	68	14	22	5	4	1	
63	0.00	52.40	768	0	0	0	3	6	9	25	28	115	78	175	92	122	42	49	18	13	0	3	0	
64	-0.01	57.65	768	0	0	0	1	7	12	37	34	111	66	151	85	126	35	71	15	16	1	0	0	

CORRELATION VALUES FOR INPUT SLC 8
STARTING RANDOM NUMBER = 216041.

CORE = MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
	0.00																							
1	8.31	32.85	768	0	0	0	0	0	0	0	0	0	10	35	84	196	98	135	64	106	16	4	0	
2	-0.01	54.63	768	0	0	0	1	6	2	35	51	113	69	141	72	131	58	70	10	3	5	1	0	
3	-0.01	38.71	768	0	0	0	0	1	0	19	38	129	81	153	89	173	47	52	5	1	0	0	0	
4	-0.01	38.94	768	0	0	0	0	0	1	22	33	128	95	143	72	164	53	52	5	0	0	0	0	
5	0.02	48.21	768	0	0	0	0	7	5	34	33	87	77	136	96	125	45	44	16	11	2	0	0	
6	-0.02	66.82	768	0	0	1	1	13	11	43	30	115	63	147	68	120	50	62	12	26	6	0	0	
7	-0.01	47.07	768	0	0	0	0	3	6	38	31	98	66	135	58	126	45	47	13	12	0	0	0	
8	-0.01	67.75	768	0	0	1	1	14	12	42	44	103	65	136	72	113	61	63	17	17	4	3	0	
9	-0.00	68.03	768	0	0	2	2	13	9	36	43	100	61	102	68	122	45	59	17	18	4	3	2	
10	-0.00	73.34	768	0	0	2	3	10	13	61	33	97	56	136	70	125	51	56	26	22	5	2	0	
11	-0.01	60.05	768	0	0	3	0	10	9	37	32	94	73	173	77	122	43	52	12	13	5	3	0	
12	-0.00	59.69	768	0	0	1	3	5	8	35	40	114	67	144	93	114	49	62	12	17	0	3	1	
13	-0.01	66.63	768	0	0	2	3	12	13	35	44	89	59	168	79	118	47	60	13	18	5	2	1	
14	0.00	68.32	768	0	0	0	1	11	15	47	40	97	66	150	80	125	44	67	21	15	6	3	0	
15	0.02	60.78	768	0	0	2	0	10	6	39	40	97	73	147	85	124	42	56	15	13	3	5	1	
16	-0.00	60.05	768	0	0	0	2	6	10	35	37	122	63	154	87	123	59	63	9	10	4	3	1	
17	-0.03	71.09	768	0	0	0	0	18	9	49	43	96	67	149	91	123	49	66	23	18	5	2	0	

CORRELATION VALUES FOR INPUT SEQ 3
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.00	83.69	768	0	2	2	1	26	10	45	33	106	62	130	63	121	41	71	14	23	8	8	2
19	-0.03	60.27	768	0	0	0	1	5	8	55	40	98	73	147	67	132	42	61	24	13	1	1	0
20	0.00	62.63	768	0	0	0	0	8	7	54	42	106	65	138	72	115	58	68	15	16	3	1	0
21	-0.07	63.85	768	0	0	0	2	12	8	49	32	111	74	125	72	125	52	73	16	16	0	0	1
22	-0.00	61.01	768	0	0	0	0	9	13	44	34	106	63	135	69	127	44	71	17	12	2	1	1
23	-0.02	56.09	768	0	0	1	0	5	5	44	37	112	67	163	71	117	44	75	10	14	1	2	0
24	-0.00	64.90	767	0	0	1	2	9	11	46	29	117	71	141	66	128	42	64	17	20	1	2	0
25	-0.17	83.39	768	0	0	0	3	15	18	64	36	103	66	124	47	121	41	64	27	30	3	6	0
26	-0.00	66.86	768	0	0	0	0	11	9	53	42	94	69	155	51	126	49	63	22	19	4	1	0
27	0.01	59.65	768	0	0	0	0	4	10	43	37	108	81	140	78	119	46	66	16	15	4	1	0
28	0.00	54.01	768	0	0	1	0	6	11	45	29	111	73	142	60	120	38	82	18	8	4	0	0
29	0.01	65.32	768	0	0	1	1	7	12	44	35	123	74	116	68	132	47	67	23	13	1	3	1
30	0.01	60.13	768	0	0	0	0	7	12	44	40	96	67	167	63	133	40	63	14	17	2	3	0
31	0.02	56.17	768	0	0	1	1	6	4	35	40	121	74	142	67	129	58	59	16	13	2	0	0
32	-0.00	66.82	768	0	0	2	2	7	10	46	44	108	58	141	72	126	47	66	14	17	4	3	1
33	-0.19	54.59	768	0	0	0	0	4	9	52	43	102	62	147	62	130	64	48	15	9	1	0	0
34	0.00	83.19	768	0	0	1	1	16	21	56	39	107	67	97	62	109	54	74	32	23	8	1	0

CORRELATION VALUES FOR INPUT SLOT 8
STARTING RANDOM NUMBER = 216041.

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	0.00	59.48	768	0	0	0	0	5	8	51	39	107	69	138	66	129	60	66	14	13	2	1	0	
36	-0.01	59.55	768	0	0	0	2	4	9	47	42	107	69	139	65	126	60	71	18	6	1	2	0	
37	0.04	65.11	768	0	0	1	1	10	15	42	36	96	67	147	78	128	51	55	20	13	3	3	0	
38	0.01	68.71	768	1	1	3	1	5	15	33	47	106	62	14[illegible]	66	124	51	64	19	11	3	7	1	
39	0.02	69.84	768	0	0	3	1	7	12	48	29	105	59	153	73	130	46	59	19	18	2	4	0	
40	0.00	65.36	767	1	0	3	3	8	7	40	30	110	81	131	74	130	59	55	14	13	1	7	0	
41	0.13	65.20	768	0	0	0	1	10	11	45	40	96	61	147	66	127	43	67	25	21	6	1	1	
42	0.00	70.56	768	0	0	1	2	13	17	36	39	103	65	142	62	133	47	64	16	17	4	7	0	
43	0.01	57.86	768	0	0	1	1	6	9	39	36	114	73	143	62	145	39	69	15	14	1	1	0	
44	-0.01	54.67	768	0	0	1	0	9	8	36	29	107	73	157	79	139	51	46	16	15	1	1	0	
45	0.01	61.65	768	0	0	2	3	9	7	36	37	108	60	150	68	130	47	53	14	17	4	3	0	
46	-0.00	72.84	766	0	0	1	2	13	15	52	33	97	71	136	68	126	38	64	22	22	4	2	0	
47	-0.00	64.59	768	0	0	1	2	10	7	50	30	105	68	150	69	123	48	65	23	12	0	5	0	
48	0.00	61.69	768	0	0	1	2	5	11	46	31	102	75	152	72	128	42	62	18	16	2	3	0	
49	0.01	62.69	768	0	0	0	1	8	6	31	53	120	82	138	65	103	49	62	27	20	2	1	0	
50	-0.01	89.96	768	0	1	3	6	19	14	58	37	89	58	140	51	111	43	67	26	30	7	6	2	
51	0.01	61.26	768	0	0	0	4	6	4	40	41	117	82	123	77	131	39	67	19	10	4	4	0	

CORRELATION VALUES FOR INPUT SEQ 8
STARTING RANDOM NUMBER = 2160414

CODE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	-0.00	62.44	768	0	0	3	1	6	9	43	45	99	78	121	86	134	49	57	17	15	2	3	0	
53	0.03	72.96	766	0	1	3	2	8	11	47	34	108	65	155	82	117	44	62	18	19	3	6	1	
54	0.00	67.11	768	0	0	1	4	13	9	45	35	103	63	150	70	109	60	70	11	20	3	2	0	
55	0.00	69.90	767	0	0	4	0	13	12	45	31	92	67	169	83	123	37	69	20	15	1	5	1	
56	0.00	63.38	768	0	0	1	3	12	9	39	31	102	74	135	74	125	39	67	14	14	7	2	0	
57	0.01	65.65	768	0	0	3	0	8	9	42	42	116	56	137	89	110	58	70	17	16	4	1	0	
58	0.01	70.42	768	0	0	1	3	6	20	52	36	98	51	153	66	112	58	70	18	15	4	5	0	
59	0.03	51.00	768	0	0	0	0	6	4	38	34	101	75	160	70	137	46	90	7	15	2	3	0	
60	-0.01	51.36	763	0	0	0	1	10	5	28	30	108	78	171	68	123	49	48	13	13	1	2	0	
61	0.06	67.38	767	0	0	3	3	10	9	39	44	104	55	148	81	112	52	67	17	19	3	1	0	
62	0.01	69.86	768	0	0	2	1	5	19	53	34	104	59	135	70	130	49	63	18	17	4	5	0	
63	0.02	58.69	768	0	0	1	4	5	9	35	34	110	74	148	80	134	45	54	12	19	3	1	0	
64	-0.00	58.84	767	0	0	0	0	10	7	38	30	122	68	160	89	120	51	63	14	9	3	3	0	

CORRELATION VALUES FOR INPUT SEQ 9
STARTING RANDOM NUMBER = 216041.

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	0.05	71.65	768	0	0	0	0	0	0	7	14	79	45	79	80	127	56	103	66	84	47	11	0
2	0.02	88.68	768	0	4	5	4	16	14	37	26	137	59	110	57	134	60	43	19	25	5	8	1
3	0.01	69.78	768	0	0	0	1	10	9	57	46	108	57	107	71	99	54	57	22	17	3	0	0
4	-0.01	68.66	768	0	0	0	0	10	14	50	49	104	60	106	66	111	55	67	19	13	4	0	0
5	0.05	49.22	768	0	0	1	1	5	6	25	36	109	70	174	88	126	46	39	11	7	2	2	0
6	0.00	42.09	768	0	0	0	0	2	2	33	30	105	83	175	86	137	53	44	13	5	0	0	0
7	-0.01	49.74	768	0	0	1	1	4	5	31	36	100	71	167	80	131	42	53	13	9	1	3	0
8	-0.00	42.20	768	0	0	0	0	1	3	33	30	110	67	161	81	158	34	34	7	9	0	0	0
9	0.08	60.59	768	0	0	0	0	6	6	52	40	105	77	148	77	134	55	55	20	21	1	1	0
10	0.00	62.80	768	0	0	3	1	8	11	37	36	105	66	160	79	119	41	65	11	21	2	2	1
11	0.00	64.03	768	0	0	1	2	13	8	45	32	96	67	155	80	131	39	63	11	15	6	3	1
12	-0.02	56.32	768	0	1	1	0	5	13	30	31	112	74	163	78	133	43	53	10	15	3	2	1
13	-0.03	58.76	768	0	0	0	0	8	8	43	33	124	64	140	75	124	54	61	12	22	0	0	0
14	0.01	61.05	767	0	0	2	0	13	11	38	27	98	63	167	79	139	40	51	12	26	0	1	0
15	0.01	64.16	767	0	0	2	1	11	9	39	33	110	58	165	66	128	50	67	16	13	6	3	0
16	0.01	56.86	767	0	0	3	1	7	6	36	36	97	79	155	85	135	40	54	13	18	0	2	0
17	0.19	66.20	768	0	0	1	0	9	10	50	42	92	79	113	66	138	61	69	14	20	1	3	0

CORRELATION VALUES FOR INPUT SEQ. 9
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODL	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.02	91.41	768	0	0	2	3	19	19	59	44	102	61	100	66	95	50	71	23	46	3	5	0	
19	0.00	57.69	768	0	0	2	0	4	8	42	36	106	62	165	73	127	47	64	13	12	3	2	0	
20	-0.00	59.05	768	0	0	1	0	9	9	41	32	117	63	152	79	121	51	59	15	14	4	1	0	
21	0.00	63.70	768	0	0	1	2	13	11	42	31	106	55	158	73	131	53	54	17	14	3	4	0	
22	-0.01	82.36	766	0	2	3	4	16	15	42	35	106	63	139	63	126	46	58	19	26	9	4	0	
23	-0.01	61.22	768	0	0	1	0	8	11	47	38	92	66	157	73	132	49	62	12	16	1	3	0	
24	-0.00	69.05	768	0	1	2	0	12	14	44	30	104	77	126	74	130	57	52	20	13	7	5	0	
25	0.00	64.82	768	0	0	0	0	9	13	50	29	117	69	133	66	126	45	58	20	21	0	2	0	
26	0.00	77.82	768	0	0	2	2	11	17	56	38	96	67	145	68	116	49	63	28	20	7	2	1	
27	-0.01	56.09	767	0	0	1	2	4	5	47	39	94	72	160	63	122	55	54	14	12	1	2	0	
28	0.00	54.93	768	0	0	1	0	7	6	41	26	107	86	151	78	130	45	60	13	13	3	0	1	
29	0.01	67.20	768	0	0	0	1	12	16	42	37	100	68	134	68	117	54	55	17	17	5	5	0	
30	0.00	76.20	768	0	1	1	2	17	18	42	37	103	58	141	57	128	51	61	20	20	5	5	1	
31	0.01	60.68	768	0	0	0	3	7	8	41	39	107	74	148	64	122	53	61	23	14	4	0	0	
32	-0.00	64.51	768	0	0	0	4	13	7	49	23	110	71	137	63	121	50	53	24	20	2	1	0	
33	0.07	77.55	768	0	0	3	6	26	21	39	16	78	62	154	69	105	65	44	23	13	3	1	0	
34	-0.00	69.89	768	0	0	0	3	12	9	53	33	99	76	135	74	114	47	64	21	21	4	3	0	

CORRELATION VALUES FOR INPUT SLOT 9
STARTING RANDOM NUMBER = 2160414

SCORE = MISC CODE	MEAN 0.00	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
35	-0.00	60.36	768	0	0	0	1	8	17	40	32	94	72	158	79	128	52	49	14	22	1	1	0
36	0.00	60.03	768	0	0	0	0	9	14	44	26	103	73	161	75	117	46	62	18	16	3	1	0
37	0.01	57.93	768	0	0	1	0	5	4	29	34	110	77	175	58	128	42	54	11	12	1	1	0
38	-0.01	61.84	768	0	0	0	2	11	9	42	34	117	56	151	61	115	46	69	16	14	5	0	0
39	0.00	66.36	768	0	0	0	1	8	5	22	27	113	80	170	66	146	47	45	6	8	2	1	1
40	0.00	62.61	768	0	0	0	2	9	10	47	41	96	63	154	71	122	43	76	15	15	3	1	0
41	-0.03	63.43	768	0	0	0	1	13	11	48	26	98	84	131	66	120	58	60	21	15	2	3	1
42	-0.00	62.93	768	0	0	1	1	10	13	29	43	116	71	148	64	132	49	63	16	19	1	1	1
43	-0.01	65.70	768	0	0	0	1	12	15	48	27	92	85	141	73	132	50	51	14	20	2	4	1
44	-0.01	62.20	768	0	0	0	1	12	13	33	35	113	66	148	68	144	48	62	12	17	3	3	0
45	0.00	60.14	768	0	0	0	2	10	12	35	38	101	70	158	77	120	46	68	12	12	5	2	0
46	-0.00	59.55	768	0	0	0	0	7	12	45	35	104	68	152	74	131	46	57	13	20	2	2	0
47	0.00	60.36	768	0	0	1	2	8	11	32	40	111	59	160	63	123	48	51	15	17	6	1	0
48	0.00	55.28	768	0	0	0	1	4	5	40	42	115	68	140	73	140	55	56	12	14	1	1	1
49	0.00	76.74	768	0	0	0	3	10	20	52	42	94	59	179	74	130	51	51	19	23	3	3	1
50	0.00	63.36	768	0	0	0	2	8	14	37	40	109	66	149	68	119	52	66	15	18	4	1	0
51	0.03	59.05	768	0	0	2	0	5	5	39	44	110	77	147	64	128	54	60	13	13	4	3	0

CORRELATION VALUES FOR INPUT SEQ 7
STARTING RANDOM NUMBER = 2160414

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	0.00	58.93	768	0	0	1	1	5	11	38	40	117	62	137	83	151	56	52	16	13	2	3	0	
53	0.05	56.40	768	0	0	2	0	4	11	33	37	109	73	145	79	140	43	60	17	9	5	1	0	
54	0.00	74.86	768	0	1	1	3	16	13	48	33	104	54	136	85	150	42	50	18	21	7	5	1	
55	-0.00	50.43	768	0	0	1	0	7	6	33	26	106	72	176	95	125	52	38	12	11	3	1	2	
56	0.01	69.47	767	0	1	3	0	13	7	55	26	102	62	148	77	123	43	62	21	18	5	1	0	
57	0.10	72.56	768	1	0	1	5	12	8	49	40	90	71	135	81	129	59	54	19	29	4	1	0	
58	-0.01	60.78	768	0	0	0	2	12	6	40	43	92	67	163	88	103	61	55	12	20	2	1	1	
59	0.00	67.76	768	0	0	1	3	8	13	44	42	90	75	152	73	123	31	61	24	21	5	2	0	
60	-0.01	64.05	768	0	0	3	1	7	8	43	37	117	63	133	83	127	51	49	16	26	2	2	0	
61	-0.04	75.49	768	0	0	1	2	15	12	55	40	102	69	125	91	119	56	79	18	17	7	2	0	
62	-0.00	64.36	768	0	0	2	1	13	8	40	36	109	61	149	76	124	48	64	14	16	3	4	0	
63	0.01	65.39	768	0	0	1	1	12	6	48	34	104	74	148	71	116	57	50	19	18	6	3	0	
64	0.01	63.84	768	0	1	0	1	12	11	47	30	99	71	144	69	135	56	57	17	11	4	3	0	

CORRELATION VALUES FOR INPUT SEQ 10
STARTING RANDOM NUMBER = 2160414

SCORE = MAC CODE	0.00 MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
18	-0.01	58.21	768	0	0	4	1	5	7	37	32	112	62	166	81	128	48	51	11	16	2	4	1	
19	-0.01	54.85	767	0	0	1	1	6	7	39	38	84	75	183	78	133	44	44	14	16	3	1	0	
20	-0.01	54.12	768	0	0	2	0	8	8	32	30	103	74	155	97	136	41	55	9	14	1	2	1	
21	-0.04	64.66	768	0	0	5	0	9	10	46	35	100	58	155	83	122	48	58	16	18	3	1	1	
22	0.00	61.15	768	0	0	1	2	7	8	40	43	105	62	156	81	121	46	58	15	19	3	0	1	
23	0.01	54.37	768	0	0	0	2	7	6	38	33	105	70	161	78	137	46	51	17	15	1	0	1	
24	0.01	56.60	768	0	0	1	3	7	4	43	27	102	80	157	83	126	49	47	23	14	2	0	0	
25	-0.05	63.64	766	0	0	3	2	8	17	31	31	96	84	163	79	120	36	53	20	18	4	1	0	
26	0.00	58.67	768	0	0	3	0	11	10	32	30	107	74	155	76	139	49	44	16	16	1	2	1	
27	0.00	52.02	768	0	0	1	2	4	3	35	39	98	78	173	63	131	45	50	8	13	2	2	1	
28	0.00	53.29	768	0	0	1	1	7	5	32	32	112	79	160	82	133	51	41	12	15	3	2	0	
29	0.00	70.08	768	0	0	0	1	14	19	45	34	93	62	154	77	117	39	67	18	18	5	5	0	
30	0.01	65.31	768	0	0	0	1	10	13	45	34	108	66	141	69	141	47	48	15	23	3	4	0	
31	0.01	57.17	768	0	0	0	2	9	12	31	39	103	59	158	76	141	54	55	11	14	3	1	0	
32	0.00	61.31	768	0	0	0	1	12	13	45	18	110	63	156	82	126	52	50	15	22	2	1	0	
33	-0.34	61.57	768	0	0	0	2	6	5	46	38	108	80	171	92	106	33	36	12	13	8	11	1	
34	0.02	68.37	763	2	0	5	1	7	3	46	38	94	60	185	68	112	48	64	13	12	1	2	2	

CORRELATION VALUES FOR INPUT SEC 10
STARTING RANDOM NUMBER = 216414

SCORE = 0.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
1	0.47	35.17	768	0	0	0	0	0	1	35	23	81	45	201	108	167	58	47	2	0	0	0	0	
2	0.00	36.67	768	0	0	0	0	3	7	21	9	108	93	194	99	158	36	15	15	10	0	0	0	
3	-0.03	90.31	768	0	0	6	7	25	15	38	27	101	65	132	87	128	35	53	17	29	9	14	0	
4	-0.01	88.33	768	0	0	5	6	25	17	36	27	99	69	126	76	128	35	53	14	30	11	11	0	
5	-0.04	93.37	764	2	1	4	7	17	15	48	44	90	65	124	63	111	51	57	24	25	9	7	0	
6	-0.01	76.60	768	0	0	0	7	16	17	32	37	103	60	151	78	107	53	54	14	23	12	4	0	
7	-0.00	93.83	765	2	2	4	3	18	12	55	40	90	52	141	59	120	47	53	22	24	13	6	2	
8	-0.01	78.15	768	0	0	1	7	18	13	38	28	113	57	152	75	98	52	59	16	26	7	8	0	
9	-0.05	57.23	768	0	0	1	1	5	9	37	38	106	76	155	74	129	44	62	12	14	4	1	0	
10	-0.00	81.50	768	0	0	2	0	16	15	62	41	103	51	128	60	102	52	76	25	28	4	3	0	
11	-0.02	63.69	768	0	0	3	1	10	8	44	27	102	77	163	62	130	40	58	22	15	2	4	0	
12	0.00	55.87	768	0	0	0	0	8	9	32	40	116	58	155	83	137	47	53	12	12	4	2	0	
13	0.00	57.92	768	0	0	1	2	8	7	31	40	118	71	140	77	129	47	68	11	15	1	2	0	
14	-0.00	74.90	768	0	0	0	1	13	15	67	35	91	64	140	56	108	49	78	22	23	5	1	0	
15	-0.02	64.25	768	0	0	4	1	8	14	42	23	107	70	155	69	133	51	49	21	12	5	4	0	
16	-0.00	56.15	768	0	0	0	1	11	3	39	39	93	76	164	84	124	38	66	8	20	1	1	0	
17	-0.18	62.32	768	0	1	2	0	11	13	37	28	104	88	139	87	135	40	38	19	21	1	2	2	

CORRELATION VALUES FOR INPUT SEQ. 10
STARTING RANDOM NUMBER = 216041.

CORL = 0.00 MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0 3 6 9 12 15 18 21 24 27 30
35	0.02	87.77	768	1 2 6 0 17 9 58 33 103 56 145 73 108 48 72 19 20 6 7 3
36	-0.01	64.09	768	1 0 7 4 9 13 51 37 104 63 144 62 95 46 72 20 22 4 5 3
37	0.02	74.00	768	0 0 4 2 14 12 40 34 103 65 155 62 119 49 53 22 23 3 6 2
38	0.00	51.73	768	0 0 0 1 5 11 31 28 111 64 163 75 135 51 44 9 18 2 0 0
39	0.00	73.12	768	0 1 3 1 22 9 32 34 111 63 131 51 119 58 58 16 15 5 7 2
40	0.00	51.44	768	0 0 0 2 5 7 38 28 99 73 141 70 141 49 50 11 8 3 3 0
41	0.06	62.56	768	0 0 2 2 9 13 34 38 97 67 138 80 117 43 71 15 19 3 0 0
42	-0.01	66.25	768	0 0 2 3 9 11 43 36 108 61 156 59 135 42 62 18 17 2 2 2
43	-0.03	62.69	768	0 0 2 3 8 10 44 29 83 84 173 72 125 41 53 15 15 7 4 0
44	0.01	63.46	768	0 0 2 0 15 11 37 36 84 77 150 69 113 55 56 17 16 2 4 0
45	-0.02	66.58	768	0 1 2 2 11 12 46 26 105 64 151 77 124 46 55 23 16 2 5 0
46	-0.00	57.73	768	0 0 0 3 8 7 39 37 106 73 148 78 130 47 64 11 13 2 2 0
47	0.02	64.06	768	0 0 2 2 11 9 42 29 94 77 159 72 139 42 53 9 15 5 7 1
48	-0.00	64.98	768	0 0 0 3 12 13 40 39 92 76 158 79 126 53 61 12 20 0 3 1
49	0.20	72.40	768	1 0 5 2 16 3 44 35 104 59 176 69 143 44 70 19 25 2 1 0
50	0.00	73.12	768	1 0 4 2 6 9 51 31 121 59 156 64 135 45 52 22 21 2 2 3
51	0.01	69.27	768	0 0 3 2 12 9 36 41 117 60 121 71 130 51 65 14 18 4 3 1

CORRELATION VALUES FOR INPUT SEC 10
STARTING RANDOM NUMBER = 2160414

SCORE = 0.00

MAC CODE	MEAN	VARIANCE	TOTAL	HISTOGRAM -30	-27	-24	-21	-18	-15	-12	-9	-6	-3	0	3	6	9	12	15	18	21	24	27	30
52	0.00	65.54	768	0	0	2	2	9	15	36	35	109	66	150	85	131	47	38	19	14	5	5	0
53	0.03	67.67	767	1	0	1	1	10	11	36	32	127	60	143	89	128	42	64	16	20	2	2	2
54	-0.00	57.40	767	0	0	1	2	7	7	42	28	108	66	166	81	118	54	61	10	12	2	2	0
55	0.00	62.04	767	0	0	2	2	8	6	40	34	117	57	161	89	131	45	55	21	15	4	0	0
56	-0.01	55.02	768	0	0	0	2	7	7	36	36	99	72	162	84	147	43	39	12	15	3	3	1
57	0.07	61.26	767	0	0	0	0	4	12	52	35	92	60	168	83	128	42	53	16	14	4	2	2
58	-0.01	57.12	768	0	0	1	0	7	7	37	33	111	70	174	72	117	46	58	17	12	4	1	1
59	-0.00	57.91	768	0	0	1	2	4	7	40	42	105	78	140	78	129	48	60	13	17	4	0	0
60	-0.01	58.08	768	0	0	0	0	13	8	36	32	114	63	155	85	118	53	55	19	12	4	1	0
61	-0.01	61.29	767	0	0	1	1	10	18	34	31	100	74	149	80	140	44	50	13	18	2	1	1
62	-0.01	50.44	768	0	0	2	1	7	2	28	35	108	71	175	76	145	37	39	10	7	3	1	0
63	-0.00	56.54	767	0	0	2	3	7	9	35	31	99	63	171	83	143	45	41	20	10	4	1	0
64	0.00	58.44	768	0	0	0	1	13	7	39	33	86	83	160	91	129	43	44	14	17	4	4	0

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APPENDIX 45

PROGRAM FOR GENERATING BTS SEQUENCES AND SUMMARY SCORES FOR A SIMULATED AIRCRAFT APPROACH AND LANDING MODEL

```
$JOB.
$ASSIGN S=MTC, SI=CR,LS=LP, B9=MT1.
$FORTRAN SI, LS, B9.
*      1  *
*      2  C      EMC AMM 68-14
*      3  C      SIMULATION PROGRAM FOR GENERATING BTS AND SUMMARY SCORES
*      4         DIMENSION A[3], P[3], P1[3]
*      5         DIMENSION IX[110],IY[110]
*      6         DIMENSION ICS[10], IALT[110], IHDG[110], IVEL[110],IRT[110]
*      7         DIMENSION IRC[110], II[20], ITIME [110]
*      8  C      ICS[1] = 1, PRINT T, RRALT, ALT, RRPSI, PSI, RRVT, X, Y, SCORE
*      9  C      ICS[2] = 1, PRINT T, IH1, IH2, IH3, ETC.
*     10  C      ICS[3] = 1, PRINT SA, SB, SC, ETC.
*     11  C      ICS[4] =1, WRITE OUTPUT TAPE, ID
*     12  C      ICS[5] = 1, WRITE OUTPUT TAPE T, IH1, IH2, IH3, ETC.
*     13  C      ICS[6] = 1, WRITE OUTPUT TAPE, SCORE
*     14  C      ICS[7] = 1, PRINT SCORE
*     15  C      ICS[8] = 1, WRITE OUTPUT TAPE IX[IB], IY[IB], IB = 1, 210]
*     16         IBIG = 5**9
*     17         SMALL = 1./[2**23-1]
*     18         READ 100, IR
*     19    100  FORMAT [I7]
*     20         PRINT 110, IR
*     21    110  FORMAT [ 10X, $IR = $, I7]
*     22         READ 300,X1,X2,X3
*     23         PRINT 300, X1, X2, X3
*     24    300  FORMAT[3F10.5]
*     25         READ 301, DELTA, FACTOR
*     26         PRINT 301, DELTA, FACTOR
*     27    301  FORMAT [2F10.5]
*     28         READ 750, [ICS[I], I=1, 10]
*     29         PRINT 750, [ICS[I], I = 1,10]
*     30    750  FORMAT [10X, 10I1]
*     31  C      ID COUNTS NUMBER OF ENTRIES INTO DATA FILE
*     32         ID = 0
*     33    700  CONTINUE
*     34         IF [SENSE SWITCH 3] 389, 770
*     35    389  PAUSE 22
*     36         READ 750, [ICS[I], I= 1, 10]
*     37         ID = ID + 1
*     38         IF [ICS [4]]  770, 770, 771
*     39    771  DO 803 J = 1, 19
*     40         II[J] = 2
*     41    803  CONTINUE
*     42         II[20] = ID
*     43         WRITE OUTPUT TAPE 2, 799,[II[J], J = 1, 20]
*     44    799  FORMAT [19I1, I4]
*     45         WRITE TAPE 3, [ID, D1, D1, D1, D1, D1, D1, D1, D1, D1]
*     46    770  PRINT 751, ID
*     47    751  FORMAT [10X, $ ID = $, 4X, I3]
*     48         READ 303,X,Y
*     49    303  FORMAT[ 2F10.3]
*     50         PRINT 340, X, Y
```

```
*    51   340  FORMAT (10X,3X = $, F10.3,4X, $Y = $,F10.3)
*    52        READ 304, ALT, PSI, VT
*    53   304  FORMAT (3F10.0)
*    54        PRINT 341, ALT, PSI, VT
*    55   341  FORMAT (10X, $ALT =$,F10.0, 4X, $PSI = $,F10.0, 4X, $VT = $,F10.0)
*    56        READ 302, C1,C2,C3,C4
*    57   302  FORMAT( 4F10.5)
*    58        PRINT 342, C1, C2, C3, C4
*    59   342  FORMAT (10X,4C1 = $,F10.5, 4X,$C2 = $,F10.5, 4X, $C3 = $,F10.5,
*    60       14X, $C4 = $, F10.5)
*    61        READ 111, BN1, BN2, BN3
*    62   111  FORMAT ( 3F10.5)
*    63        PRINT 112, BN1, BN2, BN3
*    64   112  FORMAT (10X, $BN1 = $, F10.5, $BN2 = $, F10.5, $BN3 = $, F10.5)
*    65        READ 113, P(1), P(2), P(3), PN(1), PN(2), PN(3)
*    66   113  FORMAT (6F10.5)
*    67        PRINT 114, P(1), P(2), P(3), PN(1), PN(2), PN(3)
*    68   114  FORMAT ( 10X, $P1 = $, F10.5,  $P2 = $, F10.5,  $ P3 = $, F10.5,
*    69       1 $PN1 = $, F10.5,  $PN2 = $, F10.5,  $PN3 = $, F10.5 )
*    70        PRINT 344, IR
*    71   344  FORMAT (10X, $ IR = $, I7)
*    72        IF (ICS (1)) 752, 752, 316
*    73   752  IF (ICS(2)) 317, 317, 314
*    74   314  PRINT 315
*    75   315  FORMAT (1H1, 10X$      T                  HEADING                ALTITUDE
*    76       1 LG   LOCATION    RT              RC        LOCA   AIRSPEED$//)
*    77        PRINT 318
*    78   318  FORMAT (      10X$                 1   2   3   4   5   1   2   3
*    79       1 DOWN   E     N     1   2   1   2   3   1   1   2 $//)
*    80        GO TO 317
*    81   316  PRINT 311
*    82   311  FORMAT (1H1, 10X$         T        HALT        ALT       RPSI        PSI
*    83       1       RVT        VT        X           Y          SCORE$//)
*    84   317  CONTINUE
*    85        IA=1
*    86   C    IA COUNTS NUMBER OF ENTRIES IN A DATA FILE. (210 ALLOWED)
*    87   C    INITIAL CONDITIONS
*    88        NN(1) =0
*    89        NN(2)=0
*    90        NN(3)=0
*    91        AA = 0.
*    92        BB = 0.
*    93        DD = 0.
*    94        EE = 0.
*    95        FF = 1.
*    96        N=0
*    97        N1=0
*    98        N2 = 0.
*    99        SA=0.
*   100        SB=0.
*   101        SC=0.
*   102        SD=0.
*   103        SE=0.
*   104        SF=0.
```

```
      105          LG=1.
      106          T=0.
      107          IFLAG = 0
      108     400  T = T + 1.
      109          IF (SENSE SWITCH 2) 754, 755
      110     754  PAUSE 63
      111          READ 750, (ICS(I), I = 1, 10)
      112  C        FUNCTION SELECTION
      113  C        OUTBOUND CONDITIONS
      114  C        IF ALT GREATER THAN 2400 FT
      115  C        OR
      116  C        VT GREATER THAN 100 MPH
      117  C        OR
      118  C        PSI EQUAL TO 270 DEG + / - 90 DEG
      119  C        THEN
      120  C        PSI = F1(X)
      121  C        ALT = F2(X)
      122  C        VT = F3(X)
      123  C        INBOUND CONDITIONS
      124  C        PSI = G1(X)
      125  C        ALT = G2(X)
      126  C        VT = G3(X)
      127  C        DETERMINE INBOUND / OUTBOUND CONDITION
      128     755  Y1 = 0
      129          IF (ALT - 2400) 101, 120, 120
      130     101  IF (VT - 120) 102, 120, 120
      131     102  IF (PSI - 180) 103, 120, 120
      132  C        INBOUND CONDITION
      133     103  GO TO 150
      134  C     COMPUTE OUTBOUND FUNCTIONS
      135     120  IF(N1-1) 455,455,138
      136     455  CONTINUE
      137          IF(X-X1)121,122,122
      138     121  RPSI = 315.
      139          RALT =2700.
      140          RVT = 140.
      141          A=1.
      142          B= 1.
      143          D=1.
      144          E=1.
      145          F= 0.
      146          A1=0.
      147          GO TO 140
      148     122  IF(X-X2) 123,124,124
      149     123  RPSI = 315.-108.*(X-X1)
      150          IF(RPSI-270.)       125,126,126
      151     125  RPSI = 270.
      152     126  RALT =2700.
      153          RVT = 140. -100.*(X-X1)
      154          IF( RVT- 100.) 127,128,128
      155     127  RVT=100 .
      156          A=1.
      157          B=1.
      158          D=1.
```

```
*  159          E=3.
*  160          F=0.
*  161          A1=0.
*  162   128    GO TO 140
*  163   124    IF(X -X3) 129,130,130
*  164   129    IF( N-1) 137,130,130
*  165   137    RPSI =270.-108.*(X-X2)
*  166          IF( RPSI -225.)131,132,132
*  167   131    RPSI =225.
*  168   132    RALT = 2700.
*  169          RVT =100.
*  170          A=1.
*  171          B=1.
*  172          D=1.
*  173          E=3.
*  174          F=0.
*  175          A1=0.
*  176          GO TO 140
*  177   130    N=2
*  178          IF (Y -.1) 136, 600, 600
*  179   600    IF(N2-1) 139,135,135
*  180   139    TIME =T
*  181          N2=2
*  182   135    RPSI =225.+3.*(T-TIME)
*  183          IF(RPSI -360.) 134,142,142
*  184   142    RPSI =RPSI -360.
*  185          IF (PSI -180.) 141, 511, 511
*  186   511    PSI = PSI - 360.
*  187   141    IF( RPSI -45.)134,133,133
*  188   133    RPSI =45.
*  189   134    RALT = 2700.
*  190          RVT = 100.
*  191          A=1.
*  192          B=1.
*  193          D=1.
*  194          E=3.
*  195          F=0.
*  196          A1=0.
*  197          GO TO 140
*  198   C      START INBOUND APPROACH
*  199   136    IF(N1-1) 350,138,138
*  200   350    X4=X
*  201          N1=2
*  202   138    RPSI =45.+108.*(X4-X)
*  203          IF (RPSI -90.) 143,144,144
*  204   144    RPSI =90.
*  205   143    RALT =2700.-300.*(X4-X)
*  206          RVT =100.
*  207          A1=6.3
*  208          IF(RALT -2200.) 145,146,146
*  209   145    RALT =2200.
*  210          A1=0.
*  211   146    A=2.
*  212          B=5.
```

```
      213          D=2.
      214          E=3.
      215          F=0.
      216          GO TO 140
      217  C       INBOUND FUNCTIONS
      218   150    Y1=Y
      219          IF(X-X1) 255,152,152
      220   152    RALT =2700. -300.*(X4-X)
      221          A1=8.3
      222          IF(RALT-2200.) 153,151,151
      223   153    RALT =2200.
      224          A1=0.
      225   151    A=1.
      226          B=5.
      227          D=3.
      228          E=3.
      229          F=1.
      230          IR =IR*IBIG
      231          R =(IR*C.5)*SMALL+0.5
      232          IF(R-PROB) 416,416,417
      233   416    LG =2.
      234   417     CONTINUE
      235          GO TO 140
      236   255    RALT = 2200.-275.*(X1-X)
      237          A1=5.
      238          A=2.
      239          B=5.
      240          D=5.
      241          E=3.
      242          F=1.
      243          IF(RALT -100.) 154,155,155
      244   154    A1=0.
      245          RALT =100.
      246   155    RPSI =90.
      247          RVT =100.
      248          IR =IR*IBIG
      249          R =(IR*C.5)*SMALL+C.5
      250          IF(R-PROB) 418,418,419
      251   418    LG =2.
      252   419    CONTINUE
      253   140    CONTINUE
      254  C        ADD NOISE TO REF INPUTS
      255  C       NN(I) = 1 IF A NOISE STATE
      256  C       P(I) IS PROBABILITY OF ADDING NOISE TO ALTITDE/NOISE IS NOT ADDED
      257  C        PN(I) IS PROBABILITY OF NOT ADDING NOISE/NOISE IS ADDED NOW
      258          DO 410, I = 1,3
      259          IF (NN(I)) 411,411,412
      260   411    PROB = P(I)
      261          GO TO 413
      262   412    PROB = PN(I)
      263   413    IR = IR*IBIG
      264          R = (IR*C.5)*SMALL + 0.5
      265          IF( R-PROB) 414,414,410
      266   414    IF(NN(I)) 415,415,450
```

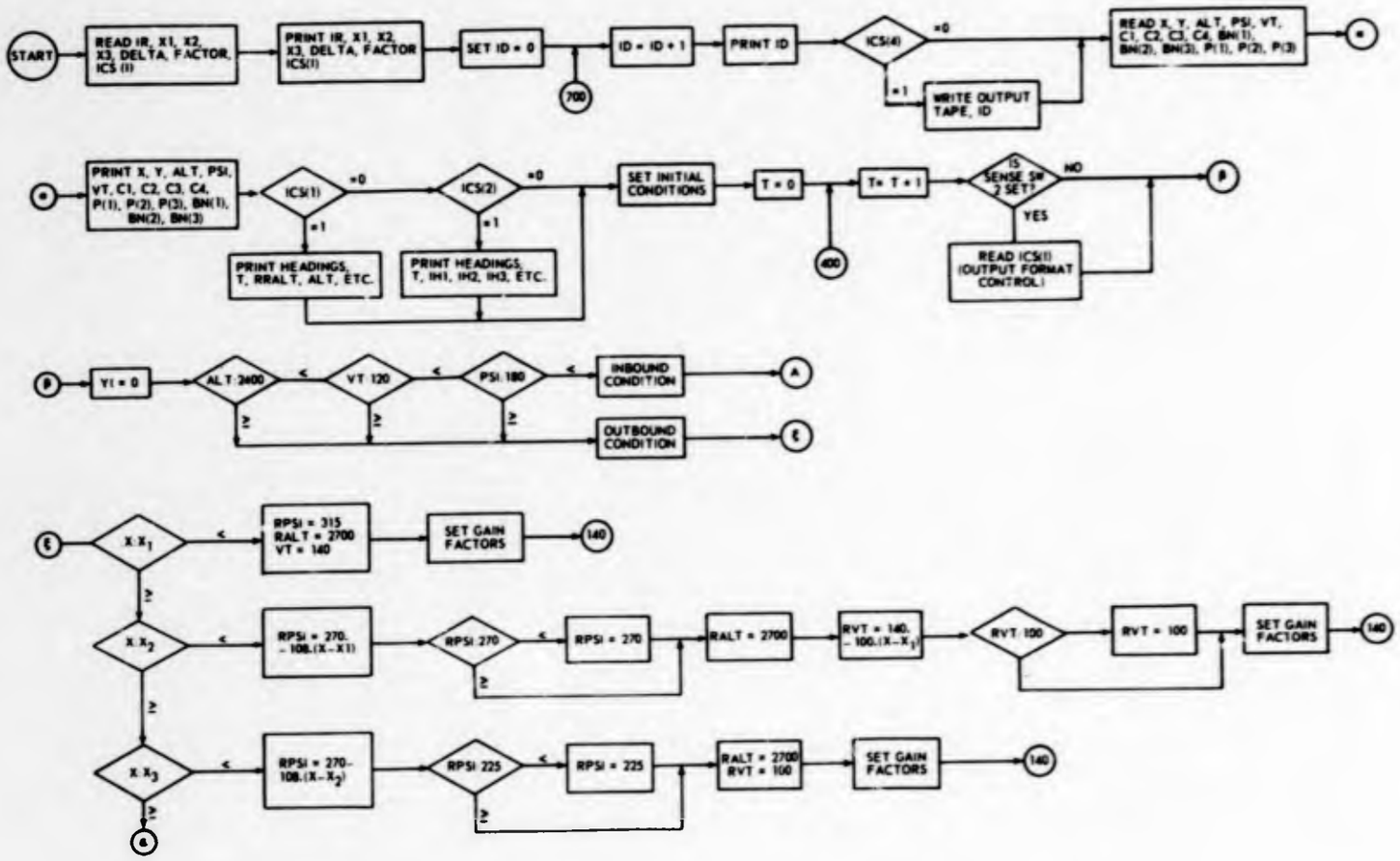
```
      415  NN(I) =1
           GO TO 410
      400  NN(I) =0
      410  CONTINUE
           RRALT = RALT + ENI*NN(1)
           RRPSI = RPSI + EN2*NN(2)
           RRVT = RVT + EN3*NN(3)
C          CONTROL EQUATIONS
           DVT = (RRVT - VT)*C1
           DPSI = (RRPSI - PSI)*C2 - Y1*C3
           DALT = (RRALT - ALT)*C4
           PSI = PSI + DPSI*DELTA
           ALT = ALT + DALT*DELTA
           VT = VT + DVT*DELTA
C          POSITION EQUATIONS
           Y = Y - VT*COS(PSI/57.4) *DELTA *.000277
           X = X - VT*SIN(PSI/57.4) *DELTA *.000277
C          BOOLEAN FUNCTION GENERATION
C          BOOLEAN STATES
C          IH1 = 1 IF HEADING IS 315 DEG +/- 3
C          IH2 = 1 IF HEADING IS 270 DEG +/- 5
C          IH3 = 1 IF HEADING IS 225 DEG +/- 5
C          IH4 = 1 IF HEADING IS 90 DEG +/- 2
C          IH5 = 1 IF HEADING IS 45 DEG +/- 5
C          IALT1 = 1 IF ALTITUDE IS 2700 FT +/- 50
C          IALT2 = 1 IF ALTITUDE IS 2200 FT - 300*X + 20 - 10
C          IALT3 = 1 IF ALTITUDE IS 2200 FT +/- 50
C          ILG = 1 IF LANDING GEAR IS DOWN
C          IAPE = 1 IF AIRCRAFT IS EAST OF NAV FACILITY
C          IAPW = 1 IF AIRCRAFT IS WEST OF NAV FACILITY
C          IRT1 = 1 IF RATE OF TURN IS 3 DEG/SEC +/-.75
C          IRT2 = 1 IF RATE OF TURN IS 0 DEG/SEC +/- 1
C          IRC1 = 1 IF RATE OF CLIMB IS -500 FPM +/- 30
C          IRC2 = 1 IF RATE OF CLIMB IS 0 FPM +/- 30
C          IRC3 = 1 IF RATE OF CLIMB IS -300 FPM +/- 30
C          ILOC = 1 IF LOCALIZER ANGLE IS +/- 1 DEG
C          IAIR1 = 1 IF AIRSPEED IS 140 MPH +/- 5
C          IAIR2 = 1 IF AIRSPEED IS 100 MPH +/- 5
C          COMPUTE BOOLEAN FUNCTIONS
           IH1 = 0
           IH2 = 0
           IH3 = 0
           IH4 = 0
           IH5 = 0
           IF (PSI - 318.) 201, 202 ,202
      201  IF (PSI - 312.) 200, 203,203
      203  IH1 = 1
      200  IF (PSI - 275.) 204, 202,202
      204  IF (PSI - 265.) 205, 206,206
      206  IH2 = 1
      205  IF (PSI - 230.) 207, 202,202
      207  IF (PSI - 220.) 208, 209,209
      209  IH3 = 1
      208  IF (PSI - 92.) 210, 202 ,202
```

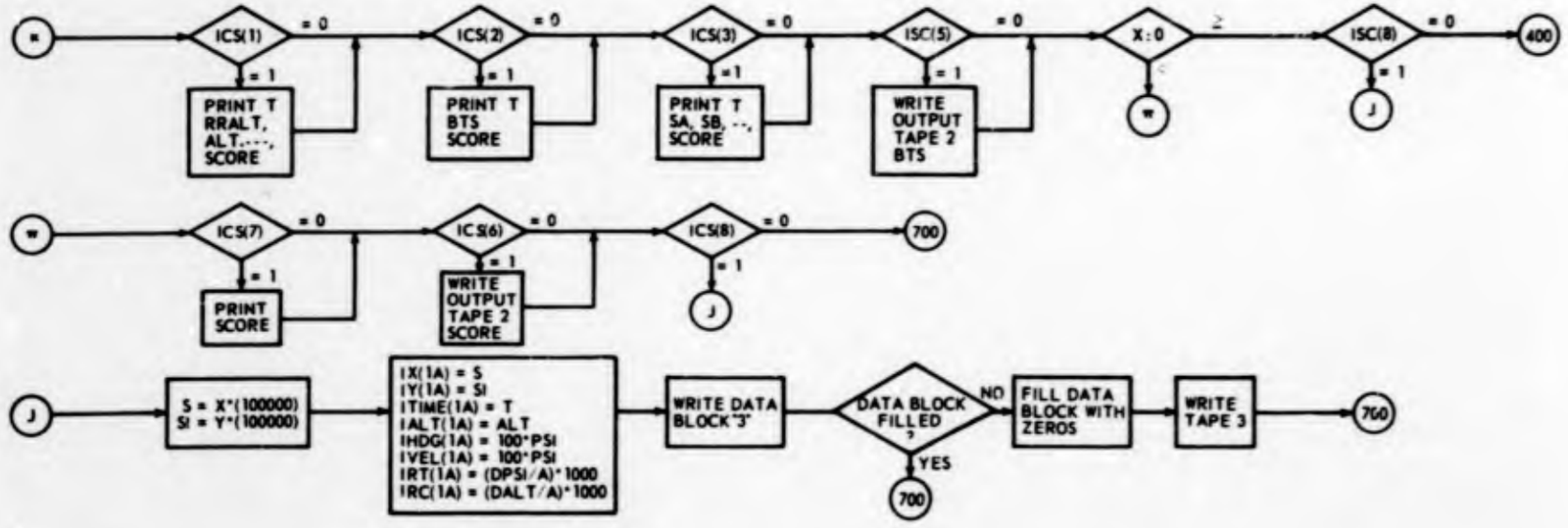
```
      321   210   IF (PSI - 86.) 211, 212  ,212
      322   212   IH4 = 1
      323   211   IF (PSI - 50.) 213, 202,202
      324   213   IF (PSI - 40.) 202, 214,214
      325   214   IH5 = 1
      326   202   IF ( ALT - 2750.) 215, 217, 217
      327   215   IF (ALT - 2650.) 217, 218 ,218
      328   218   IALT1 = 1
      329         GO TO 222
      330   217   IALT 1 = C
      331   222   IALT3 = 0
      332         IF (ALT - 2250.) 249, 250, 250
      333   249   IF (ALT - 2150.) 250, 251, 251
      334   251   IALT3 = 1
      335   250   IF (ALT - RALT - 20.) 219, 220,220
      336   219   IF (ALT - RALT + 10.) 220, 221,221
      337   221   IALT2 = 1
      338         GO TO 223
      339   220   IALT2 = 0
      340   223   IAIR1 = 0
      341         IAIR2 = 0
      342         IF (VT - 145.) 224, 225,225
      343   224   IF (VT - 135.) 227, 226,226
      344   226   IAIR1 = 1
      345   227   IF (VT - 105.) 228, 225,225
      346   228   IF (VT - 95.) 225, 229,229
      347   229   IAIR2 = 1
      348   225   CONTINUE
      349         IAPE = 0
      350         IAPW = 0
      351         IF (X - 10.) 230, 232, 232
      352   230   IAPE = 1
      353         GO TO 233
      354   232   IAPW = 1
      355   233   IRT1 = 0
      356         IRT2 = 0
      357         IF (ABS(DPSI)/DELTA - 3.75) 234, 235, 235
      358   234   IF (ABS(DPSI)/DELTA - 2.25) 236, 237, 237
      359   237   IRT1 = 1
      360         GO TO 235
      361   236   IF (DPSI/DELTA - 1.) 254, 235, 235
      362   254   IF (DPSI/DELTA + 1.) 235, 238, 238
      363   238   IRT2 = 1
      364   235   IRC1 = 0
      365         IRC2 = 0
      366         IRC3 = 0
      367         IF (DALT/DELTA -  5.) 239, 241, 241
      368   239   IF (DALT/DELTA +  5.) 241, 242, 242
      369   242   IRC2 = 1
      370   241   IF (DALT/DELTA + 7.8 ) 243, 244, 244
      371   243   IF (DALT/DELTA + 8.8 ) 244, 245, 245
      372   245   IRC1 = 1
      373   244   IF (DALT/DELTA + 4.5 ) 246, 240, 240
      374   246   IF (DALT/DELTA + 5.5 ) 240, 248, 248
```

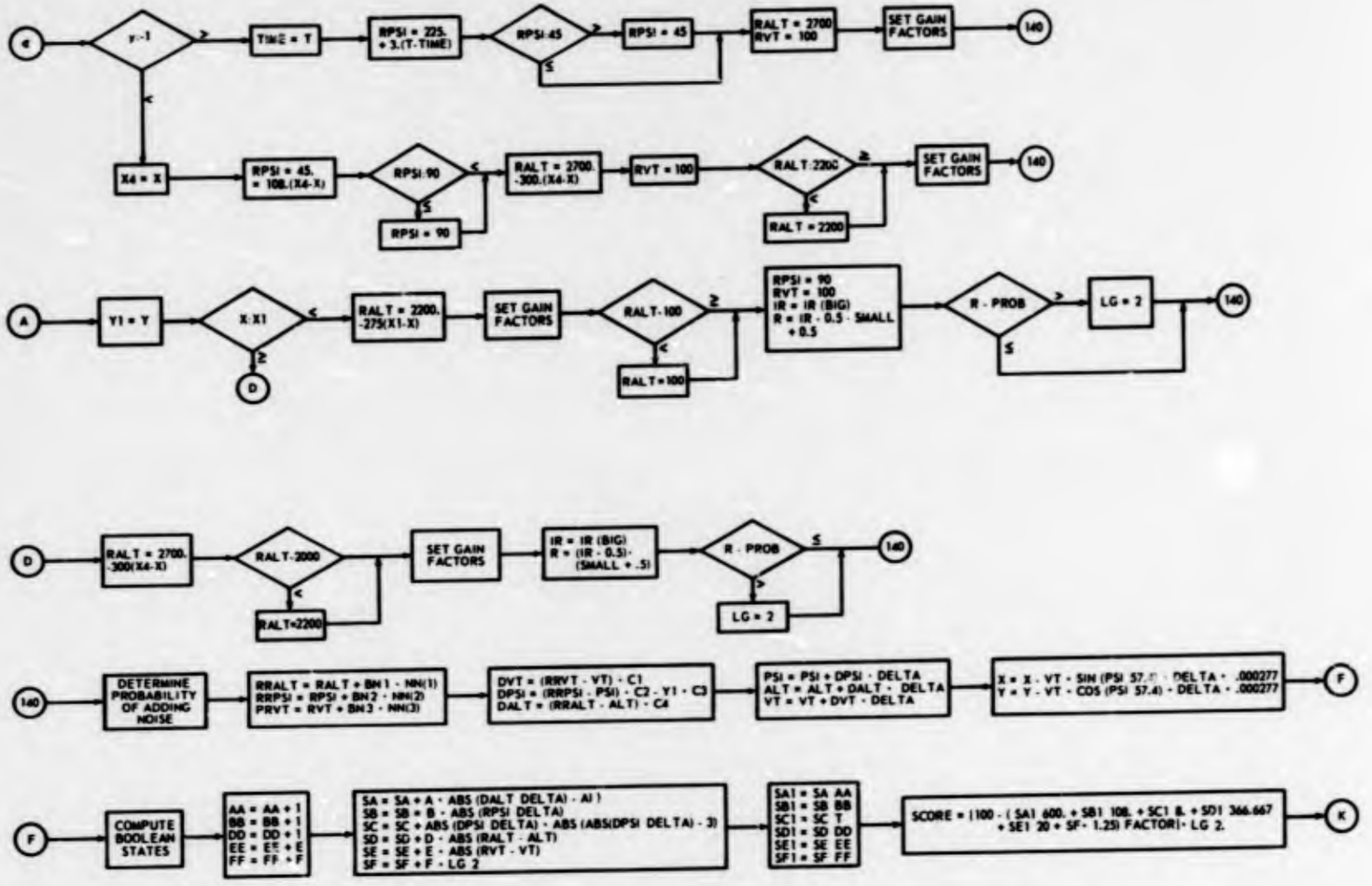
```
      375   248   IRC3 = 1
      376   240   AY = ABS(Y)
      377         ILOC = C
      378         IF (AY/X - .01746) 252, 252, 253
      379   252   ILOC = 1
      380   253   CONTINUE
      381         ILG =0
      382         IF(LG -2.)490,491,491
      383   491   ILG =1
      384   490   CONTINUE
      385   C     SIMULATED  PERFORMANCE MEASURES AND SCORES
      386         AA = AA + A
      387         BB = BB + B
      388         DD = DD + D
      389         EE = EE + E
      390         FF = FF + F
      391         SA = SA+A* ABS( DALT/DELTA -A1)
      392         SB = SB + B*ABS(RPSI-PSI)
      393         SC = SC + ABS(DPSI/DELTA) * ABS(ABS(DPSI/DELTA) - 3.)
      394         SD =SD +D*ABS(RALT-ALT)
      395         SE =SE +E*ABS(RVT-VT)
      396         SF = SF +F*LG/2.
      397         SA1 = SA/AA
      398         SB1=SB/BB
      399         SC1 = SC/T
      400         SD1 = SD/DD
      401         SE1 = SE/EE
      402         SF1 = SF/FF
      403   C     SUMMARY SCORE
      404         SCORE = ((100. - (SA1/600. + SB1/108. + SC1/8. + SD1/366.667
      405        1 +SE1/20. + SF1*1.25)*FACTOR)*LG/2.
      406         ISCORE = SCORE
      407         IT = T
      408         II(1) = IH1
      409         II(2) = IH2
      410         II(3) = IH3
      411         II(4) = IH4
      412         II(5) = IH5
      413         II(6) = IALT1
      414         II(7) = IALT2
      415         II(8) = IALT3
      416         II(9) = ILG
      417         II(10) = IAPL
      418         II(11) = IAP%
      419         II(12) = IRT1
      420         II(13) = IRT2
      421         II(14) = IRC1
      422         II(15) = IRC2
      423         II(16) = IRC3
      424         II(17) = ILOC
      425         II(18) = IAIR1
      426         II(19) = IAIR2
      427         II(20) = T
      428         IF (ICS(1))756, 756, 500
```

```
*   429    500  PRINT 310, T, RRALT, ALT, RRPSI, PSI, RRVT, VT, X, Y, SCORE
*   430    310  FORMAT (10X, 7(F10.0), 3(F10.5))
*   431    756  IF (ICS(2)) 757, 757, 501
*   432    501  PRINT 312, T, IH1, IH2, IH3, IH4, IH5, IALT1, IALT2, IALT3, ILG ,
*   433        1IAPE, IAPW, IRT1, IRT2, IRC1, IRC2, IRC3, ILOC , IAIR1, IAIR2
*   434    312  FORMAT (10X, F8.0, 19I5)
*   435    757  IF(ICS(3)) 502, 502, 520
*   436    520  PRINT 521, T , SA, SB, SC, SE, SD, SF, SCORE
*   437    521  FORMAT (10X, 8F10.2)
*   438    502  IF(ICS(5)) 790, 790, 759
*   439    759  WRITE OUTPUT TAPE 2, 799, (II(J), J = 1,20)
*   440    790  CONTINUE
*   441         IF (X) 2002,2000,2000
*   442   2002  IF (ICS(7)) 779, 779, 761
*   443    761  PRINT 762, SCORE
*   444    762  FORMAT (10X, 8 SCORE = 8 4X, F10.5//)
*   445    779  IF(ICS(6)) 780, 780, 781
*   446    781  DO 804, J=1,19
*   447         II(J) = 3
*   448    804  CONTINUE
*   449         II(20) = SCORE
*   450         WRITE OUTPUT TAPE 2, 799, (II(J), J = 1, 20)
*   451    780  CONTINUE
*   452         IF ( ICS(8)) 700,409,409
*   453   2000  IF ( ICS(8)) 400, 1096,1096
*   454   1096  S=X*100000.
*   455         S1=Y*100000.
*   456         IX(IA)=S
*   457         IY(IA)=S1
*   458         ITIME(IA) = T
*   459         IALT(IA) = ALT
*   460         IHDG(IA) = 100.*PSI
*   461         IVEL(IA) = 100.*VT
*   462         IRT(IA) = (DPSI/DELTA)*1000.
*   463         IRC(IA) = (DALT/DELTA)*1000.
*   464         IA = IA + 1
*   465         IF (IA - 110) 400, 400, 996
*   466    996  IA = 1
*   467         WRITE TAPE 3, (ITIME(K), K = 1,110)
*   468         WRITE TAPE 3, (IX(K), K = 1,110)
*   469         WRITE TAPE 3, (IY(K), K = 1, 110)
*   470         WRITE TAPE 3, (IALT(K), K = 1, 110)
*   471         WRITE TAPE 3, (IHDG(K), K = 1, 110)
*   472         WRITE TAPE 3, (IVEL(K), K = 1, 110)
*   473         WRITE TAPE 3, (IRT(K), K = 1, 110)
*   474         WRITE TAPE 3, (IRC(K), K = 1, 110)
*   475         GO TO  400
*   476    409  DO 1097 IB = IA + 1, 110
*   477         IX(IB) = 0
*   478         IY(IB) = 0
*   479         ITIME(IB) = 0
*   480         IALT(IB) = 0
*   481         IHDG(IB) = 0
*   482         IVEL(IB) = 0
```

```
      483         IRT(IB) = 0
      484         IRC(IB) = 0
      485   1097  CONTINUE
      486         WRITE TAPE 3, (ITIME(K), K = 1,110)
      487         WRITE TAPE 3, (IX(K), K = 1,110)
      488         WRITE TAPE 3, (IY(K), K = 1, 110)
      489         WRITE TAPE 3, (IALT(K), K = 1, 110)
      490         WRITE TAPE 3, (IHDG(K), K = 1, 110)
      491         WRITE TAPE 3, (IVEL(K), K = 1, 110)
      492         WRITE TAPE 3, (IRT(K), K = 1, 110)
      493         WRITE TAPE 3, (IRC(K), K = 1, 110)
      494         GO TO 700
      495         END

PROGRAM ALLOCATION

 00015 NN      00020 P       00026 PA      00034 IX
 00212 IY      00370 ICS     00402 IALT    00560 IHDG
 00736 IVEL    01114 IRT     01272 IRC     01450 II
 01474 ITIME   01652 IBIG    01653 IR      01654 I
 01655 ID      01656 J       01657 IA      01660 N
 01661 N1      01662 N2      01663 LG      01664 IFLAG
 01665 IH1     01666 IH2     01667 IH3     01670 IH4
 01671 IH5     01672 IALT1   01673 IALT3   01674 IALT2
 01675 IAIR1   01676 IAIR2   01677 IAPE    01700 IAPW
 01701 IRT1    01702 IRT2    01703 IRC1    01704 IRC2
 01705 IRC3    01706 ILOC    01707 ILG     01710 ISCORE
 01711 IT      01712 K       01713 IB      01714 SMALL
 01716 X1      01720 X2      01722 X3      01724 DELTA
 01726 FACTOR  01730 D1      01732 X       01734 Y
 01736 ALT     01740 PSI     01742 VT      01744 C1
 01746 C2      01750 C3      01752 C4      01754 BN1
 01756 BN2     01760 BN3     01762 AA      01764 BB
 01766 DD      01770 EE      01772 FF      01774 SA
 01776 SB      02000 SC      02002 SD      02004 SE
 02006 SF      02010 T       02012 V1      02014 RPSI
 02016 RALT    02020 RVT     02022 A       02024 B
 02026 D       02030 E       02032 F       02034 A1
 02036 TIME    02040 X4      02042 R       02044 PROB
 02046 RRALT   02050 RRPSI   02052 RRVT    02054 DVT
 02056 DPSI    02060 DALT    02062 AY      02064 SA1
 02066 SB1     02070 SC1     02072 SD1     02074 SE1
 02076 SF1     02100 SCORE   02102 S       02104 S1

SUBPROGRAMS REQUIRED

 COS       SIN       ABS
```


START
READ IR, X1, X2, X3, DELTA, FACTOR, ICS (I)
PRINT IR, X1, X2, X3, DELTA, FACTOR ICS(I)
SET ID = 0
700
ID = ID + 1
PRINT ID
ICS(4)
=0
=1
WRITE OUTPUT TAPE, ID
READ X, Y, ALT, PSI, VT, C1, C2, C3, C4, BN(1), BN(2), BN(3), P(1), P(2), P(3)
PRINT X, Y, ALT, PSI, VT, C1, C2, C3, C4, P(1), P(2), P(3), BN(1), BN(2), BN(3)
ICS(1)
ICS(2)
PRINT HEADINGS, T, RRALT, ALT, ETC.
PRINT HEADINGS, T, IH1, IH2, IH3, ETC.
SET INITIAL CONDITIONS
T = 0
400
T= T + 1
IS SENSE SW 2 SET?
NO
YES
READ ICS(I) (OUTPUT FORMAT CONTROL)
YI = 0
ALT 2400
VT 120
PSI 180
INBOUND CONDITION
OUTBOUND CONDITION
X X1
RPSI = 315 RALT = 2700 VT = 140
SET GAIN FACTORS
140
X X2
RPSI = 270. - 108.(X-X1)
RPSI 270
RPSI = 270
RALT = 2700
RVT = 140. - 100.(X-X1)
RVT 100
RVT = 100
X X3
RPSI = 270- 108.(X-X2)
RPSI 225
RPSI = 225
RALT = 2700 RVT = 100


ICS(1)
= 0
= 1
PRINT T RRALT, ALT.---, SCORE
ICS(2)
= 0
= 1
PRINT T BTS SCORE
ICS(3)
= 0
= 1
PRINT T SA, SB, --, SCORE
ISC(5)
= 0
= 1
WRITE OUTPUT TAPE 2 BTS
X : 0
≥
ISC(8)
= 0
= 1
400
ICS(7)
= 0
= 1
PRINT SCORE
ICS(6)
= 0
= 1
WRITE OUTPUT TAPE 2 SCORE
ICS(8)
= 0
= 1
700
S = X*(100000)
SI = Y*(100000)
IX(1A) = S
IY(1A) = SI
ITIME(1A) = T
IALT(1A) = ALT
IHDG(1A) = 100*PSI
IVEL(1A) = 100*PSI
IRT(1A) = (DPSI/A)*1000
IRC(1A) = (DALT/A)*1000
WRITE DATA BLOCK "3"
DATA BLOCK FILLED ?
NO
YES
700
FILL DATA BLOCK WITH ZEROS
WRITE TAPE 3
760


C
Y=1
>
<
TIME = T
RPSI = 225. + 3.(T-TIME)
RPSI:45
>
≤
RPSI = 45
RALT = 2700
RVT = 100
SET GAIN FACTORS
140
X4 = X
RPSI = 45. + 108.(X4-X)
RPSI:90
<
≤
RPSI = 90
RALT = 2700. -300.(X4-X)
RVT = 100
RALT:2200
≥
<
RALT = 2200
SET GAIN FACTORS
140
A
Y1 = Y
X:X1
<
≥
D
RALT = 2200. -275(X1-X)
SET GAIN FACTORS
RALT:100
≥
<
RALT = 100
RPSI = 90
RVT = 100
IR = IR (BIG)
R = IR - 0.5 - SMALL + 0.5
R - PROB
>
≤
LG = 2
140
D
RALT = 2700. -300(X4-X)
RALT:2000
<
RALT<2200
SET GAIN FACTORS
IR = IR (BIG)
R = (IR - 0.5) - (SMALL + .5)
R - PROB
≤
>
LG = 2
140
140
DETERMINE PROBABILITY OF ADDING NOISE
RRALT = RALT + BN1 - NN(1)
RRPSI = RPSI + BN2 - NN(2)
PRVT = RVT + BN3 - NN(3)
DVT = (RRVT - VT) - C1
DPSI = (RRPSI - PSI) - C2 - Y1 - C3
DALT = (RRALT - ALT) - C4
PSI = PSI + DPSI - DELTA
ALT = ALT + DALT - DELTA
VT = VT + DVT - DELTA
X = X - VT - SIN (PSI 57.4) - DELTA - .000277
Y = Y - VT - COS (PSI 57.4) - DELTA - .000277
F
F
COMPUTE BOOLEAN STATES
AA = AA + 1
BB = BB + 1
DD = DD + 1
EE = EE + E
FF = FF + F
SA = SA + A - ABS (DALT DELTA) - A1
SB = SB + B - ABS (RPSI DELTA)
SC = SC + ABS (DPSI DELTA) - ABS (ABS(DPSI DELTA) - 3)
SD = SD + D - ABS (RALT - ALT)
SE = SE + E - ABS (RVT - VT)
SF = SF + F - LG 2
SA1 = SA AA
SB1 = SB BB
SC1 = SC T
SD1 = SD DD
SE1 = SE EE
SF1 = SF FF
SCORE = (100 - (SA1 600. + SB1 108. + SC1 8. + SD1 366.667 + SE1 20 + SF - 1.25) FACTOR) - LG 2.
K

APPENDIX 46

PROGRAM AND RESULTS FOR PERFORMING STATISTICAL EVALUATION OF A UNIFORM RANDOM NUMBER GENERATION

APPENDIX 46

PROGRAM AND RESULTS FOR PERFORMING STATISTICAL EVALUATION OF A UNIFORM RANDOM NUMBER GENERATION

Simulation of the various computational mechanisms on the digital computer requires generation of random numbers. Two methods of generating the random numbers are used in the studies. One method termed "true random number generation" employs a noise diode, amplifier, and analog-to-digital converter arrangement to supply random numbers to the computer. The other method (termed "pseudo random number generator") employs numbers generated internal to the computer. The latter method has been tested, and the results of the tests are given below.

1. Tests on Pseudo Random Number Generator

The first test program provides a printout of every 1,000th number starting with (6655774) as computed by the FORTRAN formula:

$$IR = IR * (5**9)$$

In addition, a test was made to detect the occurrence of the starting number. Figure 1 is the program listing and the printout is given in figure 2. It was verified that the system does not recycle within the 250,000 numbers examined.

The printout allows selection of starting numbers other than the one given above. The computation was run on an SDS 910 computer using SDS 900 series FORTRAN II.

```
JOB.
.ASSIGN S=MTO,SI=CR,BO=MT1,LO=LP.
.FORTRAN SI,L9,BO.
      1  C       EMC  AMM 68-1
      2  C       PSEUDO RANDOM NUMBER GENERATOR TEST
      3  C       READOUT OF RANDOM NUMBERS AT 1000 WORD INTERVALS
      4  C       TEST FOR PERIOD
      5          DIMENSION IRD(5)
      6          READ 1, (IR)
      7        1 FORMAT (I7)
      8          PRINT 4, (IR)
      9        4 FORMAT (1H1,10X,$READOUT OF RANDOM NUMBERS AT 1000 WORD INTERVALS$
     10         1 ,///,20X,$IR=$,I7)
     11          K=0
     12          IZ=IR
     13       15 K=K+1
     14          DO 9,J=1,5
     15          DO 10, I=1,1000
     16          IR = IR*(5**9)
     17  C       TEST FOR REPEAT OF FIRST NUMBER
     18          IF(IZ-IR) 10,12,10
     19       12 PRINT 2, (I,K)
     20       10 CONTINUE
     21          IRD(J)=IR
     22        9 CONTINUE
     23          PRINT 3,(IRD(J),J=1,5)
     24          GO TO 15
     25        3 FORMAT (10X, 5(3X,I9))
     26        2 FORMAT(1H1,10X,$FIRST NUMBER IS REPEATED WHEN I=$,I7,$AND K=$,I7)
     27          STOP
     28          END

PROGRAM ALLOCATION

  00000 IRD       00005 IR        00006 K         00007 IZ
  00010 J         00011 I
```

Figure 1.

READOUT OF RANDOM NUMBERS AT 1000 WORD INTERVALS

IR=6655774

-1669026	14750	7316190	-3029986	-6054562
433/310	-1411106	-4622050	-549213C	-6315106
5295326	6073886	4212574	5806238	-1924642
-302306	-6300578	-5436002	-2099490	-2779106
717150	-2293090	-7812130	2837790	-4094370
2652062	1908958	3965470	236382	-3183458
-2296354	4798238	1126494	1171870	543454
-7246818	2770270	3135134	-215453C	5579038
-7415202	6300638	-6196002	-2861538	8318814
-114530	-7386658	5180190	3834974	-3061150
-1532194	344094	104798	3844766	-1215522
3601694	1322590	6430622	-2242338	2370078
-5094562	-1764194	-418338	843550	1824862
231838	-8326434	3216414	-7279266	-164194
-4995106	-3094242	5341790	1242014	-3007266
2833102	-6449314	-8132450	1831390	-8211682
-4903842	-7316066	-3062050	1370142	-2604706
7885470	3283934	2268446	4642398	8112030
8286430	-1322466	4254558	-2442082	-637474
-5208290	426078	-2805346	-2516258	-5194722
-2648738	-5560674	6844382	2912542	-775586
-6513762	-1915682	6530590	-6537378	-1470306
-7824930	-6923490	1037406	-3013218	-6689058
299036	-7411362	-6948194	5686238	-1161954
5865054	7696286	-59170	-7112162	-5270690
-5217122	-2953762	3419934	-3069858	-7939682
1196766	1074206	-115362	3722910	-190498
6822174	7787102	410526	-2921250	8080926
8054622	3094686	-2831186	-773245C	4881502
-807522	4363998	-2869218	2462046	-7101794
5991390	-6689506	4990558	5183390	6275294
1778206	-115874	6687902	-7367202	-6826210
8114270	1606046	2812638	5245982	320862
-5867874	7454686	-8142562	-2524578	5237662
-6023970	753411C	3772254	3562526	125406
6138654	6628446	-698978	-3457314	-8134626
-6538914	742467C	4199390	2463006	2018910
573342	-6264610	-8205794	2941790	-281442
2899422	-2392290	424030	-7722594	2331358
7320606	-1340066	-778594	-3774498	8349982
1843806	7967646	5553374	4890142	-2607266
5933214	954846	1135390	6278238	-2687586
3401438	1280030	-859810	3076766	310238
-7258850	-3049890	-6133858	-412450	-3509730
3902302	7429278	-5708322	-55522	7413854
-2371170	-247074	7298078	-3098146	2213534
-323618	5968158	4115038	-3176738	-1743650
149022	5693278	420675C	-312866	-5965026
3830878	-6773346	8163038	-3179682	2722142
-3368290	-5676066	-2300642	6561374	1839006
-4081442	-910818	2765662	-3734370	363998

Figure 2.

134094	-4470690	883102	-4922658	5178398
5823338	3108510	1030110	1469182	4289118
7136156	5639390	-6659250	-4860546	393134
-3677730	1614622	-713634	3820958	-5949730
-2959330	4206942	4866718	3017694	560414
-2701730	7714718	-5135586	-409058	-468130
-217954	4339166	-1673442	-1675170	2040222
5061822	96:566	-2128546	1926334	286686
-5086946	2366046	3574686	-5851938	1152542
-774306	-5537634	7637470	7097118	-7355298
-4459106	-5382434	163870	3594390	-5772642
-7162914	1324318	2715230	-5283938	6490334

Figure 2. (Concluded)

2. Pseudo Random Number Generator

The second program (listed in figure 3) provides a method of generating pseudo random numbers from a uniform and also a gaussian distribution. Figure 4 gives a printout of the first 100 numbers from a uniform distribution over the range -5.0 to +5.0. Figure 5 is a printout of the first 100 numbers from a distribution which approximates a gaussian distribution. The technique involves adding twelve numbers from a uniform distribution (range -0.5 to +0.5) to form each number in the "gaussian" distribution. This program also dumps blocks of 1000 numbers on tape for later analysis and use.

```
*JOB.
*ASSIGN S=MT0,SI=CR,BO=MT1,LO=LP.
*FORTRAN SI,LO.
*     1  *
*     2  C     EMC  AMM 68-2
*     3  C     PSEUDO RANDOM NUMBER GENERATOR
*     4  C     SENSE SWITCH 1 SET- PRINTS FIRST 100 RANDOM NUMBERS
*     5  C     SENSE SWITCH 2 SET- SKIPS PAUSE AND LOADS IS TIMES 1000 WORDS ON
*     6  C                         TAPE 2.
*     7  C     SENSE SWITCH 3 SET- COMPUTES GAUSSIAN RANDOM NUMBERS.
*     8        DIMENSION R(1000)
*     9        READ1, IS
*    10      3 READ1,IR
*    11      1 FORMAT(I7)
*    12        PRINT 4, IR
*    13      4 FORMAT(1H1,10X,*PSEUDO RANDOM NUMBER GENERATOR*,//,20X,*IR=*,I7)
*    14        IZ=0
*    15         III=5**9
*    16        SMALL=1./(2**23-1)
*    17    100 DO 10,I=1,1000
*    18        IR=IR*III
*    19        R(I)=((IR*0.5)*SMALL)*10.
*    20     10 CONTINUE
*    21        IF(SENSE SWITCH 1)11,12
*    22     11 PRINT 2
*    23      2 FORMAT (1H1,10X,*FIRST 100 RANDOM NUMBERS*)
*    24        DO 15,J=1,100,5
*    25        K=J+4
*    26        PRINT 5,(R(I),I=J,K)
*    27      5 FORMAT(10X,5(F15.8))
*    28     15 CONTINUE
*    29     12 IF (SENSE SWITCH 2) 21,20
*    30     20 PAUSE 1
*    31     21 WRITE TAPE 2, (R(I), I=1,1000)
*    32        IZ = IZ+1
*    33        IF(IS-IZ) 31,31,30
*    34     30 GO TO 100
*    35     31 PAUSE 2
*    36        IF (SENSE SWITCH 3) 40,41
*    37     40 IZ=0
*    38    200 DO 50, I=1,1000
*    39        RA=0.
*    40        DO 55, J=1,12
*    41        IR=IR*III
*    42        RA=RA + ((IR*0.5)*SMALL
*    43     55 CONTINUE
*    44        R(I) = RA
*    45     50 CONTINUE
*    46        IF (SENSE SWITCH 1) 60,61
*    47     60 PRINT 2
*    48        DO 65, J=1,100,5
*    49        K=J+4
*    50        PRINT5, (R(I),I=J,K)
```

Figure 3.

```
*    51      65 CONTINUE
*    52      61 IF (SENSE SWITCH 2) 70,71
*    53      71 PAUSE 3
*    54      70 WRITE TAPE 3,(R(I), I=1,1000)
*    55         IZ=IZ+1
*    56         IF (IS-IZ) 41,41,80
*    57      80 GO TO 200
*    58      41 CONTINUE
*    59         STOP
*    60         END

PROGRAM ALLOCATION

00000 R         03720 IS        03721 IR        03722 IZ
03723 III       03724 I         03725 J         03726 K
03727 SMALL     03731 RA
```

Figure 3. (Concluded)

FIRST 100 RANDOM NUMBERS

0.72217354	-4.97582614	0.72622665	1.26605883	0.86600672
-0.83441863	-3.70142650	1.59484849	2.46827513	-0.71919569
1.08530415	4.41764765	-2.36223318	-0.99246156	-1.25575677
0.35821800	4.44264822	-3.71964618	-3.08320678	2.47035890
-0.83954463	4.58049737	3.47893160	-2.52229840	-3.47189587
4.18688705	2.75100809	-2.59742471	-1.00811613	3.42411917
1.94775009	-1.06809748	2.35746816	-0.08553625	-2.97174132
-1.56459946	2.03986550	1.62686708	-0.65398820	-0.55261738
-0.68647989	-0.87255171	1.69884013	-4.19914415	-2.43778854
4.82800422	4.61903031	2.50070482	-1.47089618	-3.76099751
2.62312324	-3.02631533	-1.43326419	-3.78340885	0.46211606
0.31843070	4.88702236	4.41409044	-0.62863953	-1.44455092
1.81125066	-1.46830695	3.32052350	3.87712406	-2.97991431
-4.43352871	-4.73611530	-4.10228897	-2.19643261	3.06237138
3.36974397	2.90334617	-2.65889102	0.36021118	-2.62899073
3.10203470	0.80150018	-0.15231254	4.61491044	-4.12634064
1.89290427	-1.79062984	-3.48695439	3.01998055	-1.18713989
-2.32329515	4.69139513	0.01462817	0.64828284	-2.72198829
-2.73969325	-2.74688873	3.59546108	4.08848692	-4.93549048
1.30281345	-2.78994236	4.48019916	-2.06689502	-3.84700940

Figure 4.

PSEUDO RANDOM NUMBER GENERATOR

IR=6655774

FIRST 100 RANDOM NUMBERS

1.10211529	-2.13840176	1.65611621	1.77277729	-0.78255901
-0.78528271	-0.29203466	0.85929452	0.54956395	-0.12161685
1.66411181	-0.05614138	-0.52651650	0.22759583	-2.10044552
1.40146987	0.36420016	-0.36264472	-1.21070542	0.60712774
0.59671361	-0.51733834	0.70833167	-0.06416750	-0.45397621
-0.86148511	-0.96833479	-0.23741582	0.58713109	0.97991526
-0.86570416	-0.53761727	-0.90496503	0.38186221	0.39122348
0.41022830	0.44473606	-0.28064397	0.17744782	-0.01887941
0.01123380	-0.63260324	-1.13203110	0.55005986	-0.83047161
1.70098468	-0.16221287	-0.50795418	0.29462007	0.09511901
-0.53805792	0.18207886	1.76150867	-0.07519961	1.11531414
-0.00484132	-1.05480636	1.56502885	1.17302289	-0.69371470
1.22067609	0.39080386	1.21002848	-0.50954110	0.96295511
0.77712593	0.00133085	0.92267953	0.54703099	0.09899474
0.52193028	-0.02205324	0.34790377	-0.26858953	-1.05317367
-1.96873927	-0.25942662	0.04937315	0.65101965	-0.54237801
-0.89996015	-0.57211740	0.00950956	-1.36797015	-0.19869664
0.24193910	1.39729660	-0.07051516	-0.78063640	0.86654244
0.18938019	-0.27501348	0.72922095	0.67669257	0.76076087
1.39353530	-0.29412512	2.04736975	0.48643833	0.31013063

Figure 5.

3. Statistical Tests for Correlated Noise

The third program provides some statistical tests for possible correlation of the random numbers. Figure 6 is a printout of the program listing. As seen in the listing, both mean (AVEX) and variance (VAR) are computed. In addition, a twenty level histogram of the distribution is constructed and an autocorrelation program is provided.

Four blocks of 1000 numbers from a uniform distribution were tested. Figure 7 shows the mean, variance, and histogram for the first block of data. It should be noted that in all histogram computations, the numbers were multiplied by two to get a better data spread (i.e., k=2). Figure 8 gives an autocorrelation for the numbers. Figures 9, 10, and 11 give mean, variance and histograms for the remaining blocks of data.

Three blocks of 1000 numbers from the constructed gaussian distribution were tested. Figures 12, 14, 15 give the mean, variance and histogram for this data. Figure 13 is an autocorrelation of the first data block.

These tests provide a rough feel for the nature of the pseudo random numbers generated in the manner described. The method appears to be satisfactory for the development and test of adaptive math models.

```
*JOB.
*ASSIGN S=MTO, SI=CR,LO=LP, BO=MT1.
*FORTRAN SI,LO,BO.
*     1  *
*     2  C      EMC/ARS  AMP 68-3
*     3  C      STATISTICAL TESTS FOR CORRELATED NOISE
*     4         DIMENSION X(1000), IXHIS(20), XAUTO(500)
*     5         PAUSE
*     6         READ 101,K
*     7     101 FORMAT(I5)
*     8         READ TAPE 2,(X(I),I=1,1000)
*     9  C      EVALUATE MEAN OF THE X(I)
*    10         SUM=0
*    11         DO 20,I=1,1000
*    12         SUM=SUM+X(I)
*    13      20 CONTINUE
*    14         AVEX=SUM/1000.
*    15  C      EVALUATE VARIANCE OF THE X(I)
*    16         SUM=0
*    17         DO 21 I=1,1000
*    18         SUM=SUM+(X(I)-AVEX)**2
*    19      21 CONTINUE
*    20         VAR=SUM/1000.
*    21         PRINT 10
*    22      10 FORMAT(1H1,10X,$STATISTICAL TESTS FOR CORRELATED NOISE$)
*    23         PRINT 22, (AVEX, VAR)
*    24      22 FORMAT(//,10X,$AVEX=$,F12.4,12X,$VAR=$,F12.4)
*    25  C      CONSTRUCT TWENTY LEVEL HISTOGRAM OF DIST OF THE X(I).
*    26         DO 100 J=1,20
*    27         IXHIS(J)=0
*    28     100 CONTINUE
*    29         DO 30 I=1,1000
*    30         DO 31 J=1,20
*    31          IF(X(I)*K-J+10.) 32,31,31
*    32      32 IXHIS(J)=IXHIS(J)+1
*    33         GO TO 30
*    34      31 CONTINUE
*    35      30 CONTINUE
*    36         PRINT 35
*    37      35 FORMAT(//,$     HISTOGRAM OF DIST OF X(I)$,///,$J$,6X,$IXHIS(J)$)
*    38         PRINT 34, (J, IXHIS(J), J=1,20)
*    39      34 FORMAT(2I11)
*    40  C      EVALUATE AUTOCORRELATION FCT OF X(I) FOR 500 VALUES OF DT
*    41         PRINT 40
*    42      40 FORMAT(1H1,$AUTO CORRELATION OF X(I)$,///,5X,$DELTA$,10X,
*    43        1$AUTO CORRELATION$,//)
*    44         DO 35 J=1,500
*    45         XAUTO(J)=0.
*    46         DO 36 I=1,(1000-J+1)
*    47         XAUTO(J) = XAUTO(J) + X(I)*X(I+J-1)
*    48      36 CONTINUE
*    49         XAUTO(J)=XAUTO(J)/(1000-J+1)
*    50         PRINT 37, (J,XAUTO(J))
```

Figure 6.

```
*    51      37 FORMAT(I12,12X,F15.10)
*    52      35 CONTINUE
*    53  *     END

PROGRAM ALLOCATION

  00002 X          03722 IXHIS      03746 XAUTO      05716 <
  05717 I          05720 J          05721 SUM        05723 AVEX
  05725 VAR
```

Figure 6. (Concluded)

STATISTICAL TESTS FOR CORRELATED NOISE

A.EX= -0.1479 VAR= 8.0985

HISTOGRAM OF DIST OF X(I)

J	IXMIS(J)
1	45
2	57
3	48
4	53
5	63
6	56
7	43
8	56
9	54
10	58
11	46
12	47
13	46
14	54
15	38
16	51
17	46
18	45
19	55
20	37

Figure 7.

AUTO CORRELATION OF X[I]

DELTA	AUTO CORRELATION
1	8.1204040729
2	C.0979896016
3	C.4648115705
4	-C.0822494113
5	-C.1807076714
6	0.0624101925
7	-C.1597184437
8	0.2077817219
9	-C.1638003027
10	-C.3523196408
11	-C.3797239102
12	-C.0940224735
13	-0.2241377908
14	C.2027963594
15	-C.2608981723
16	-0.2109704597
17	-0.4429994734
18	0.1969961704
19	0.1999928179
20	C.4110378850
21	-C.6320805383
22	0.0090355917
23	-C.0216C15669
24	-C.0696341016
25	C.0193925667
26	-0.0833972535
27	-0.0394170034
28	C.1829114269
29	-0.1187744358
30	0.2174094720
31	0.2017192662
32	0.1160C69629
33	-0.4308491323
34	0.0972650008
35	-0.0128977721
36	C.0177849933
37	0.5C78983382
38	-0.2856171917
39	0.2343571949
40	-0.1657386185
41	0.1179991895
42	C.2935970921
43	0.0481725390
44	-0.0510C44277
45	-C.2644208515
46	0.1841201426
47	C.0578388754
48	-0.1226350804
49	0.1761748581

Figure 8.

50	-0.1102286900
51	0.1227605901
52	0.0361763627
53	0.0220742256
54	-0.2656735758
55	0.1188759940
56	-0.4100709795
57	0.1319418605
58	0.0459586375
59	-0.0564061714
60	0.2692364998
61	0.1295818870
62	0.3556544879
63	-0.0932046709
64	0.1575383369
65	0.4221759592
66	-0.0162774331
67	-0.0383890503
68	0.0747496381
69	-0.5411503257
70	0.1158612207
71	-0.2283975426
72	0.1188758635
73	0.0726217786
74	0.1675566443
75	-0.0164412911
76	0.3137442131
77	-0.0557657860
78	-0.1898690197
79	0.0770321339
80	-0.3208629283
81	-0.1113557170
82	0.1772637938
83	0.0703385762
84	-0.0692543472
85	0.2695289035
86	0.1784082617
87	-0.2592962623
88	0.2297589369
89	0.2734825432
90	0.0428128839
91	0.0077982264
92	-0.2174657605
93	-0.0798836955
94	0.0225818318
95	0.1113686316
96	0.2744386755
97	0.2683070442
98	0.2078859656
99	-0.1011235491
100	-0.4139589726
101	0.2173270104
102	-0.1824338828
103	-0.1761920070

Figure 8. (Concluded)

STATISTICAL TESTS FOR CORRELATED NOISE

AVEX= 0.0077 VAR= 8.6506

HISTOGRAM OF DIST OF X[I]

IXHIS[J]	
1	43
2	66
3	46
4	54
5	49
6	50
7	46
8	51
9	48
10	54
11	51
12	42
13	45
14	43
15	46
16	55
17	49
18	50
19	54
20	58

Figure 9.

STATISTICAL TESTS FOR CORRELATED NOISE

AVEX= -0.0892 VAR= 8.5453

HISTOGRAM OF DIST OF X[I]

IXHIS[J]	
1	47
2	63
3	65
4	48
5	50
6	41
7	54
8	38
9	47
10	63
11	45
12	42
13	51
14	58
15	46
16	52
17	37
18	45
19	59
20	49

Figure 10.

STATISTICAL TESTS FOR CORRELATED NOISE

A.EX= 0.0572 VAR= 8.4153

HISTOGRAM OF DIST OF x[I]

IXHIS(J)	
1	49
2	53
3	51
4	39
5	47
6	60
7	43
8	49
9	47
10	61
11	53
12	47
13	34
14	45
15	47
16	66
17	67
18	48
19	38
20	56

Figure 11.

STATISTICAL TESTS FOR CORRELATED NOISE

A.EX= 0.0010 VAR= 0.9165

HISTOGRAM OF DIST OF x[I]

IXHIS(J)	
1	0
2	0
3	0
4	0
5	3
6	11
7	34
8	94
9	174
10	206
11	178
12	149
13	79
14	58
15	9
16	4
17	1
18	0
19	0
20	0

Figure 12.

AUTO CORRELATION OF X[I]

DELTA	AUTO CORRELATION				
1	0.9164780959	50	0.0020243891	100	-0.0226811435
2	0.0263316966	51	-0.0115461521	101	-0.0258003596
3	-0.0438070805	52	-0.0159603581	102	0.0365465280
4	-0.0022053382	53	0.0227564042	103	0.0190963139
5	0.0157350066	54	-0.0484525677		
6	0.0105440396	55	-0.0468202064		
7	-0.0390340025	56	0.0707513688		
8	-0.0477057928	57	0.0182480981		
9	-0.0172703830	58	-0.0124868469		
10	-0.0085701058	59	-0.0078467232		
11	-0.0083935687	60	-0.0407740567		
12	-0.0225329570	61	0.0402111347		
13	0.0188615805	62	0.0042192934		
14	0.0038276268	63	-0.0339303298		
15	-0.0025076396	64	0.0178907974		
16	-0.0054385016	65	0.0374276444		
17	-0.0112046684	66	-0.0103646627		
18	0.0414390050	67	-0.0243844282		
19	0.0077506283	68	0.0065916975		
20	-0.0092102365	69	0.0000005060		
21	0.0293367464	70	0.0014650377		
22	0.0071305814	71	-0.0276568924		
23	0.0212428211	72	0.0310330882		
24	-0.0390183947	73	0.0128950074		
25	0.0346585512	74	-0.0124326845		
26	0.0314121453	75	-0.0121967037		
27	0.0450007623	76	-0.0453732731		
28	0.0121118877	77	0.0092208577		
29	-0.0064303168	78	0.0561042074		
30	-0.0005783124	79	-0.0082911818		
31	0.0368840441	80	0.0055257809		
32	0.0074747536	81	-0.0621972002		
33	-0.0235848203	82	-0.0335971087		
34	0.0163221452	83	-0.0204454951		
35	0.0046911283	84	-0.0165243987		
36	-0.0526864438	85	-0.0150164384		
37	-0.0604865605	86	-0.0352959110		
38	-0.0127062855	87	0.0330873612		
39	0.0494311672	88	0.0193728948		
40	0.0209960905	89	0.0020478460		
41	-0.0330437041	90	-0.0196586186		
42	-0.0004339327	91	-0.0047771396		
43	-0.0042893092	92	0.0443132961		
44	0.0771986794	93	-0.0391685464		
45	0.0040123405	94	0.0205277426		
46	0.0509413160	95	0.0315036951		
47	0.0167341826	96	0.0770398308		
48	0.0287425004	97	0.0102383957		
49	-0.0006101955	98	0.0115477982		
		99	0.0461847403		

Figure 13.

STATISTICAL TESTS FOR CORRELATED NOISE

AVEX= -0.0009 VAR= 0.9807

HISTOGRAM OF DIST OF X(I)

IXHIS(J)	
1	0
2	0
3	0
4	1
5	6
6	11
7	46
8	102
9	142
10	196
11	183
12	160
13	83
14	52
15	13
16	4
17	1
18	0
19	0
20	0

Figure 14.

STATISTICAL TESTS FOR CORRELATED NOISE

AVEX= 0.0241 VAR= 0.8885

HISTOGRAM OF DIST OF X(I)

IXHIS(J)	
1	0
2	0
3	0
4	0
5	6
6	16
7	32
8	80
9	149
10	207
11	192
12	177
13	85
14	40
15	13
16	2
17	1
18	0
19	0
20	0

Figure 15.

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13. ABSTRACT

This report documents research on a new approach to deriving human performance measures and criteria for use in automatically evaluating trainee performance. The ultimate application of the research is to provide methods for automatically measuring pilot performance in a flight simulator or from recorded in-flight data. An efficient method of representing performance data within a computer is described. A system of adaptive mathematical and computer models is developed to examine representative performance data corresponding to known skill-levels and to independently develop a unique method of performance evaluation. Three types of models are developed, each of which is designed to derive and use (in an adaptive performance evaluation scheme) unique types of performance measures: (1) State-transfer measures, which are based on overall trends of the performance; (2) Absolute measures, which are based on a comparison of actual performance with some reference or standard; and (3) Relative measures, which are based on relations among various performance variables. A preliminary demonstration and an evaluation of the system are made, using a simulated aircraft landing model program to provide hypothetical test data.

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