

Program Abstracts/Algorithms

A note on Pellegrino's (1972) program for analyzing higher order subjective organization units in free recall

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Pellegrino (1972) presented a FORTRAN IV program for analyzing higher order units of subjective organization in free recall for three ordering criteria; unidirectional, bidirectional, and unordered. The program listing as cited in the article will not run because of an apparent typographical error involving the dimension statements. The first 11 lines of the program should appear as follows:

```
PROGRAM SUBORG(INPUT,OUTPUT,TAPE5=INPUT)
DIMENSION EXP(3,20,9),DEV(3,20,9),ARC(3,20,9),E(3)
DIMENSION NN(40),MM(40,20),JTR(3),ITR(3,20,9),MAX(20,9),IX(10),ARC
//I(3),MATRIX(8,9,9),IR(20,10),SAVE(72,30,4)
REAL MEAN(3,10)
READ 1, NS,MS
1 FORMAT(I3,I2)
DO 115 N=1,NS
PRINT 15
15 FORMAT(IH1)
IBUG=0
```

Users concerned only with obtaining the original output described by Pellegrino may replace the first seven lines of the published program (p. 116) with the above. The remainder of this note concerns several additional modifications which may increase the program's utility.

The modifications introduced below are optional for the user, and involve saving and printing the parameters needed to calculate the expectation of an intertrial repetition for each of the ordering criteria. These include the values of R, M, and N as defined in Pellegrino (1971). A further modification calculates the average ARC score values across trials for each ordering criterion and size, by subject. These modifications are all additions to the original program and should be inserted directly into the listing in the locations indicated below.

After Line 9 in the second column of Pellegrino's (1972, p. 216) program listing which reads 109 CONTINUE, insert

```
IR(M,L)=ICTRI
```

This statement saves the R values for later printing.

After Line 35 in the second column (p. 216) which reads 114 CONTINUE, insert

```
NIXON=NX-1
LL=3*NT1
DO 180 I=1,LL
DO 180 J=1,NIXON
```

```
180 SAVE(NSS,I,J)=0
DO 181 JJ=1,NT1
DO 181 II=1,3
J=3*(JJ-1)+II
DO 181 K=1,NIXON
SAVE(NSS,J,K)=ARC(II,JJ,K)
181 CONTINUE
```

This saves the individual ARC scores for later calculation of each subject's mean value across trials.

After Line 36 in the second column (p. 216) which reads IF(IBUG .EQ. 1) GO TO 115, insert

```
PRINT 529, NSS
529 FORMAT(1HO,13HBEGIN SUBJECT,2X,I3)
```

This prints the subject identification number as a heading for the output on each subject.

After Line 20 in the first column (p. 217) which reads 527 PRINT 520, (ARC(3,J,K),K=1,NIXON), insert

```
PRINT 511
PRINT 855
DO 860 J=1,NT1
860 PRINT 854,J,(IR(J,K),K=2,NX)
854 FORMAT(1H,6HTRIAL,12,19X,10(12,6X))
855 FORMAT(1HO,23HR VALUES FOR ALL TRIALS)
NIXON=NX-1
DO 850 K=1,NIXON
DO 850 I=1,3
850 MEAN(I,K)=0.
DO 851 I=1,3
DO 851 K=1,NIXON
DO 851 J=1,NT1
851 MEAN(I,K)=MEAN(I,K)+(ARC(I,J,K)/FLOAT(NT1))
PRINT 852
PRINT 511
PRINT 518,(MEAN(I,JK),JK=1,NIXON)
PRINT 853,(MEAN(2,JK),JK=1,NIXON)
PRINT 520,(MEAN(3,JK),JK=1,NIXON)
853 FORMAT(1H,10X,13HBIDIRECTIONAL,2X,10(1+6,3,2X))
852 FORMAT(1HO,47HMEAN ARC SCORES FOR ALL THREE ORDERING CRITERIA)
PRINT 800
800 FORMAT(1HO,14HM AND N VALUES)
DO 870 I=1,NT
J=I+1
PRINT 801,I,NN(I),NN(J)
801 FORMAT(1H,6HTRIAL,3(12,5X))
870 CONTINUE
```

This block of cards will print R values for each subject by trial and size of subjective organization unit, calculate and print the mean ARC scores for each subject by the ordering criteria and unit size across trials, and print the values of M and N by trial for each subject. To delete the printing of R values only, remove the first six statements from this block. To delete the calculation of mean ARC scores only, remove the 7th through 21st statements (i.e., from NIXON=NX-1 through the 852 FORMAT statement). Finally, to delete only the printing of M and N values, remove the 22nd through 28th cards (i.e., from PRINT 800 through 870 CONTINUE).

REFERENCES

- Pellegrino, J. W. A general measure of organization in free recall for variable unit size and internal sequential consistency. *Behavior Research Methods & Instrumentation*, 1971, 3, 241-246.
- Pellegrino, J. W. A FORTRAN IV program for analyzing higher-order subjective organization units in free recall learning. *Behavior Research Methods & Instrumentation*, 1972, 4, 215-217.