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SUBROUTINE SEARCH (BOARD,I,J,MOVROW,MOVCOL,L)
DIMENSION BOARD(8,8),MOVROW(4),MOVCOL(4)
INTEGER BOARD
C   ASSUME THE CHECKERS ARE CODED AS FOLLOWS:
C       1-WHITE MAN
C       2-WHITE KING
C       3-BLACK MAN
C       4-BLACK KING
C   BOARD IS THE ARRAY REPRESENTING THE
C   CHECKER BOARD WITH 0'S IN POSITIONS WITH
C   NO MEN, I AND J ARE THE COORDINATES OF
C   THE MAN WHOSE MOVES ARE BEING SEARCHED
C   FOR, MOVROW AND MOVCOL ARE ARRAYS WHICH
C   ARE TO CONTAIN THE ROW AND COLUMN COORDINATES
C   OF POSSIBLE MOVES AND L COUNTS THE NUMBER OF
C   POSSIBLE MOVES ***
C   IF(BOARD(I,J) IS ZERO, ERROR HAS BEEN MADE
C   IF(BOARD(I,J).EQ.0) STOP
L=0
K=BOARD(I,J)
C   ASSUME WHITE MEN START IN ROWS ONE
C   TO THREE, BLACK MEN IN ROWS SIX TO EIGHT....
GO TO (4,4,6,4),K
C   ENTRY FOR ALL EXCEPT BLACK MAN
C   FORWARD RIGHT
C   TEST IF MOVE IS ON BOARD
4 IF(I.EQ.8) GO TO 8
  IF(J.EQ.8) GO TO 2
  IF(BOARD(I+1,J+1).NE.0) GO TO 2
  L=L+1
  MOVROW(L)=I+1
  MOVCOL(L)=J+1
C   FORWARD LEFT
2 IF(J.EQ.1) GO TO 8
  IF(BOARD(I+1,J-1).NE.0) GO TO 8
  L=L+1
  MOVROW(L)=I+1
  MOVCOL(L)=J-1
C   EXIT TEST FOR WHITE MAN
8 IF(K.EQ.1) RETURN
C   BACKWARD RIGHT
6 IF(I.EQ.1) RETURN
  IF(J.EQ.8) GO TO 10
  IF(BOARD(I-1,J+1).NE.0) GO TO 10
  L=L+1
  MOVROW(L)=I-1
  MOVCOL(L)=J+1
C   BACKWARD LEFT
10 IF(J.EQ.1) RETURN
  IF(BOARD(I-1,J-1).NE.0) RETURN
  L=L+1
  MOVROW(L)=I-1
  MOVCOL(L)=J-1
RETURN
END

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Again, the repeated tests, with no obvious pattern, should alert us to a possible structural weakness. Some combination of statements ought surely to be isolated as