```
      SUBROUTINE NAM(N,X,Y)
      GO TO (1,2,3),N
    1 PRINT 101,X,Y
  101 FORMAT ('\put(',F6.2,',',F6.2,'){${\bf N}$}')
      GO TO 77
    2 PRINT 102,X,Y
  102 FORMAT ('\put(',F6.2,',',F6.2,'){${\bf \theta , mrad}$}')
      GO TO 77
    3 PRINT 103,X,Y
  103 FORMAT ('\put(',F6.2,',',F6.2,'){$\bu $}')
   77 RETURN
      END
C
      SUBROUTINE NAMXI(X,Y,A)
      PRINT 101,X,Y,A
  101 FORMAT ('\put(',F6.2,',',F6.2,'){$ \chi^2 =$\bf',F6.2,'}')
      RETURN
      END
C
      SUBROUTINE NAMXII(X,Y,I)
      PRINT 101,X,Y,I
  101 FORMAT ('\put(',F6.2,',',F6.2,'){$\Sigma N=$\bf',I4,'}')
      RETURN
      END
C
      SUBROUTINE BEG(X,Y)
      PRINT 103,X,Y
  103 FORMAT (
     *'\begin{table}[t]'/
     *'\begin{picture}(',F5.1,',',F5.1,')')
      RETURN
      END
C
      SUBROUTINE FRAM(XN,YN,X,Y)
      PRINT 101,XN,YN,X,Y
  101 FORMAT ('\thicklines',
     *'\put(',F5.1,',',F5.1,'){\framebox(',F5.1,',',F5.1,')}')
      RETURN
      END
C
      SUBROUTINE ENCT
      PRINT 119
  119 FORMAT (
     *'\end{picture}')
      CALL TEXT
```

```
      PRINT 102
  102 FORMAT (
     *'\end{table}')
      RETURN
      END
C
      SUBROUTINE LINREL(WC,XX,WX,C,D,S)
      S2=S**2
    1 X=XX
      Y=C*F(X,S2)
      XXX=D/SQRT(1.0+(Y*(1.0/X-X/S2))**2)
      Y=Y+WC
      XX=XXX+X
      RX=X+WC
      IF (RX.GT.WX) GO TO 2
      CALL PRCDOT(RX,Y)
      GO TO 1
    2 RETURN
      END
C
      FUNCTION F(X,S2)
      F=(X/S2)*EXP(-(X**2/(2.0*S2)))
      RETURN
      END
C
      SUBROUTINE PRCDOT(X,Y)
      PRINT 101,X,Y
  101 FORMAT (
     *'\put(',F6.2,',',F6.2,'){$\cdot$}')
      RETURN
      END
C
      SUBROUTINE HIGR(WC,X,Y,SG,N,E)
      DIMENSION E(13)
      X1=X
      Y1=Y+WC
      DO 1 K=1,N
      Y2=E(K)+WC
      D=ABS(Y2-Y1)
      I=1
      IF (Y2.EQ.Y1) GO TO 5
      IF (Y2.LT.Y1) I=-I
      CALL LINEC(X1,Y1,D,0,I)
    5 CALL LINEC(X1,Y2,SG,1,0)
      X1=X1+SG
```

```
    1 Y1=Y2
      RETURN
      END
C
      SUBROUTINE LINEC(X,Y,DL,IX,IY)
      PRINT 101,X,Y,IX,IY,DL
  101 FORMAT (
     *'\put(',F6.2,',',F6.2,'){\line(',I2,',',I2,'){',F6.2,'}}')
      RETURN
      END
C
      SUBROUTINE RISKI(XG1,XGST,NX,DX,YGC,STPY,YV1,YVST,NY,DY,
     *XVC,STPX)
C XG1 YV1 FIRST X AND Y COORD ALONG OX OY AXIS
C XGST YVST STEPS ALONG OX OY AXIS
C NX NY NUMBER OF RISKS ALONG OX OY
C DX DY LENGTH OF RISKS IN MM OX OY
C YGC=WC Y COORD DOWN LINE (AXIS OX)
C STPY=XMA DISTANCE BETWEEN VERTICAL LINES
C STPX=YMA DISTANCE BETWEEN GORISONAL LINES
C XVC=WC X COORD FIRST VERTICAL LINES (OY)
      X=XG1
      Y=YGC
      YY=Y+STPY
      DO 1 K=1,NX
      CALL LINEC(X,Y,DX,0,1)
      CALL LINEC(X,YY,DX,0,-1)
    1 X=X+XGST
      Y=YV1
      X=XVC
      XX=X+STPX
      DO 2 K=1,NY
      CALL LINEC(X,Y,DY,1,0)
      CALL LINEC(XX,Y,DY,-1,0)
    2 Y=Y+YVST
      RETURN
      END
C
      SUBROUTINE PRIDE(X,Y,N,DX,A,ST)
      DO 1 K=1,N
      XX=X
      PRINT 101,XX,Y,A
  101 FORMAT (
     *'\put(',F6.2,',',F6.2,'){$\bf',F4.2,'$}')
      X=X+DX
```

```
    1 A=A+ST
      RETURN
      END
C
      SUBROUTINE PRINTI(X,Y,J,D,N,IN,IS)
      DO 1 K=1,N
      PRINT 101,X,Y,IN
  101 FORMAT (
     *'\put(',F6.2,',',F6.2,'){${\bf ',I4,'}$}')
      IF (J.EQ.0) X=X+D
      IF (J.NE.0) Y=Y+D
    1 IN=IN+IS
      RETURN
      END
C
      SUBROUTINE AHI
      COMMON /NHI/NHI(84),IHI,NLM,GR,SA
      COMMON /AXXX/AXX,XX,XX2,T
      AXX=AXX+1.0
      XX=XX+T
      XX2=XX2+T*T
      M=INT((T-GR)/SA)
      IFL=0
      X=GR+SA*(NLM-4)
      IF (T.LT.GR) GO TO 1
      IF (T.GT.X) GO TO 2
      GO TO 3
    1 M=NLM-4
      IFL=2
      GO TO 3
    2 M=NLM-3
      IFL=2
    3 K=M+IHI
      NHI(K)=NHI(K)+1
      K=NLM+IHI-1
      NHI(K)=NHI(K)+1
      K=K-1
      IF (IFL.GT.1) GO TO 77
      NHI(K)=NHI(K)+1
   77 RETURN
      END
C
      SUBROUTINE ELEFUN(S2)
C F- EMPIRIKAL FUNKTION DISTR N- NAMBER OF OBS
C 7 DEK 2001 LEPEKHIN RELEY DISTR
```

```
      COMMON /ELEF/F(1000),N
      DIMENSION P(4),E(4)
      DATA P/1.62,1.747,1.862,2.001/
      DATA E/0.1,0.05,0.025,0.01/
      DATA AMX,AMI/1.0E12,-1.0E12/
      DATA PSKM,PAKK/0.743,1.63/
      CALL RANGIR
      AMAX=AMI
      AMIN=AMX
      AE=N
      C=0.0
      AE2=AE*2.0
      SKM=0.0
      AKK=AMI
      DO 3 K=1,N
      C=C+1.0
      FF=F(K)**2
      PP=1.0-EXP(-(FF/(2.0*S2)))
      FF=PP
      BBE=FF-C/AE
      SKM=SKM+(FF-(2.0*C-1.0)/AE2)**2
      IF (BBE.GT.AKK) AKK=BBE
      IF (AMAX.LT.BBE) AMAX=BBE
      IF (AMIN.GT.BBE) AMIN=BBE
    3 CONTINUE
      X=AMAX-AMIN+1.0/AE
      V=X*(SQRT(AE)+0.155+0.24*SQRT(1.0/AE))
      AKK=AKK*SQRT(AE)
      SKM=SKM+1.0/(12.0*AE)
      PRINT 104,SKM,PSKM,AKK,PAKK,V,P(4)
  104 FORMAT (
     *2X,'CRITR KRAM-MIS AND FOR 1 PERCENT',2E10.3/
     *2X,'CRITER KOLMOGOROV AND FOR 1%',2E10.3/
     *2X,'CUIPR CRITER AND FRO 1%',2E10.3)
      RETURN
      END
C
      SUBROUTINE RANGIR
      COMMON /ELEF/F(1000),N
      M=N-1
    7 DO 31 L=1,M
      A=F(L+1)
      IF (A.GT.F(L)) GO TO 31
      F(L+1)=F(L)
      F(L)=A
```

```
   31 CONTINUE
      M=M-1
      IF (M.GT.0) GO TO 7
      RETURN
      END
C
      SUBROUTINE GAUSS(SR,SS,SX)
      A=0.0
      DO 1,K=1,12
      CALL CRND(R)
    1 A=A+R
      SX=(A-6.0)*SS
      RETURN
      END
C
      SUBROUTINE QT
      COMMON /AXXX/AXX,
     *XX,XX2,X
      COMMON /ELEF/F(1000),M
      DATA SR,SS/0.0,20.0/
      DO 2 K=1,540
      S=0.0
      DO 1 L=1,2
      CALL GAUSS(SR,SS,X)
    1 S=S+X**2
      M=M+1
      X=SQRT(S)
      F(K)=X
    2 CALL AHI
      RETURN
      END
C
      SUBROUTINE CRND(R)
C GENERATION OF RANDOM DISTRIB  NUMBER FROM 1.0 TO 0.0
C 1 DECEMBER LEPEKHIN
      DIMENSION C(50)
      DATA INI,E/0,1.0/
      DATA C/
     *  2.0,3.0,5.0,7.0,11.0,13.0,17.0,19.0,23.0,29.0,31.0,
     *37.0,41.0,43.0,47.0,53.0,59.0,61.0,63.0,71.0,73.0,79.0,83.0,
     *89.0,97.0,101.0,103.0,107.0,109.0,113.0,127.0,131.0,137.0,
     *139.0,149.0,151.0,157.0,163.0,167.0,173.0,179.0,181.0,
     *191.0,193.0,197.0,199.0,211.0,223.0,223.0,229.0/
      IF (INI.GT.1) GO TO 2
      DO 1 K=1,50
```

```
    1 C(K)=SQRT(C(K))
      INI=2
    2 I=50.0*RND()+1
      IF (I.GT.50) I=50
      R=RND()+C(I)
      C(I)=R
      R=AMOD(R,E)
      RETURN
      END
      FUNCTION RND()
      DATA I,M,L,A/272667285,2147483646,65539,0.4656613E-9/
    1 J=I*L
      IF (I) 5,6,6
    5 J=J+M+1
    6 I=J
      R=I
      R=R*A
      IF (R.LT.0.0) GO TO 1
      IF (R.GT.1.0) GO TO 1
      RND=R
      RETURN
      END
C
      SUBROUTINE TFTA(N,X,Y,F)
      DIMENSION X(11),Y(11)
      A=N
      XQ=0.0
      SY=0.0
      SX=0.0
      SXY=0.0
      DO 1 K=1,N
      XQ=XQ+(X(K)**2)/A
      SX=SX+X(K)/A
      SY=SY+Y(K)/A
      SXY=SXY+(X(K)*Y(K))/A
    1 F=((SXY-SX*SY)/(XQ-SX**2))
      RETURN
      END
C
      SUBROUTINE FIGREL
C  DATA OF LAST REDACTION: 3 JUN 2005 LEPEKHIN
      COMMON /IGA/E(20),WC,IGA,NST,XMA,YMA,SA,SH,XIK2,SIG,CD,NX,NY,
     *INX,ISX,INY,ISY,NCIX,NCIY,AEV,X1,Y1,ADX,ADY,UX,UY,EXIK(20),NXIK,
     *AMM
      DIMENSION YNAD(2),XNAD(2)
```

```
  DATA C/2.0/
  DO 1 K=1,NST
  E(K)=E(K)/AMM
1 EXIK(K)=EXIK(K)/AMM
  SIG=SIG*(SA/SH)
  X=XMA+WC
  Y=YMA+WC
  CALL BEG(X,Y)
  CALL FRAM(WC,WC,XMA,YMA)
  J=2
  CALL PRINTI(C,Y1,J,ADY,NCIY,INY,ISY)
  J=0
  CALL PRINTI(X1,C,J,ADX,NCIX,INX,ISX)
  XNAD(1)=C
  YNAD(1)=WC+YMA-5.0
  YNAD(2)=C
  XNAD(2)=XMA
  XG1=WC+SA
  YV1=WC+CD
  CALL RISKI(XG1,SA,NX,C,WC,YMA,YV1,CD,NY,
 *C,WC,XMA)
  DO 7 K=1,2
  X=XNAD(K)
  Y=YNAD(K)
7 CALL NAM(K,X,Y)
  X=XMA*UX+WC
  Y=YMA*UY+WC
  CALL NAMXI(X,Y,XIK2)
  Y=Y-5.0
  I=AEV
  CALL NAMXII(X,Y,I)
  Y=E(1)
  X=WC
  CALL HIGR(WC,X,Y,SA,NST,E)
  IF (IGA.EQ.2) GO TO 8
  IF (IGA.EQ.4) GO TO 8
  CC=AEV*SA
  X=1.0
  WX=WC+XMA-5.0
  D=0.4
  CALL LINREL(WC,X,WX,CC,D,SIG)
  GO TO 9
8 X=WC+0.5*SA-1.0
  DO 10 K=1,NXIK
  Y=EXIK(K)+WC
```

```
      CALL NAM(3,X,Y)
   10 X=X+SA
    9 CALL ENCT
      RETURN
      END
C
        SUBROUTINE PREP
C  RELEY DISTRIBUTION EXPER DATA ANGLES THETA OR PT
C IGA=0 - ONLY TEXT IGA=2 - PICTURE LATEX TEXT IGA=3 TOGEHE
C  FOR USING THIS PROGRAMM YOU MAST TO DO :
C  pico difi00.f FOR MAKE NEW PROGRAM
C  AND THEN NEW TEXT BY OVN COMMAND :
C  g77 -v -fno-backslash -o be difi00.f
C ./be < bbe8al.dat > xxx.res (IGA=0) pico xxx.res
C ./be <bbe8al.dat > lafi.tex (IGA=2) latex ff.tex dvitops ff.dvi
C WITH IGA=3 YOU HAVE xxx.res CONTENT FILE FOR DONE OF FIGURE
C  lpr xxx.res cp ff.ps difi00.ps
C  DATA OF LAST REDACTION: 2 JUN 2005 LEPEKHIN
C
      COMMON /AXXX/AXX,XX,XX2,X
      COMMON /NHI/NHI(84),IHI,NLM,GR,SA
      COMMON /ELEF/F(1000),MM
      COMMON /IGA/EE(20),WC,IGA,NST,XMA,YMA,SAA,SH,XIK2,SIG,CD,NX,NY,
     *INX,ISX,INY,ISY,NCIX,NCIY,AEV,X1,Y1,ADX,ADY,UX,UY,EW(20),NXIK,
     *AMM
      DIMENSION EXI(20),EXR(20)
      DATA EXI/0.0,0.0,0.0,13.8,15.9,16.8,18.5,20.2,21.7,
     *23.2,24.7,26.2,27.7,29.1,30.6,32.0,33.4,34.8,36.2,37.2/
      S2=XX2/(2.0*AXX)
      S22=2.0*S2
      SIG=SQRT(S2)
      IK=NLM-4
      LI=AXX
      LLKI=0
      L=0
      NST=4
      DO 41 K=5,IK
      IF (NHI(K).LT.4) GO TO 44
   41 NST=NST+1
   44 DO 42 M=1,IK
      L=L+NHI(M)
      LLKI=LLKI+1
      IF (L.EQ.LI) GO TO 51
   42 CONTINUE
   51 CONTINUE
```

```
      AEV=0.0
      DO 1 K=1,NST
      C=NHI(K)
      EE(K)=C/AMM
    1 AEV=AEV+C
      C=SA
      NXIK=NST-1
      DO 21 K=1,NXIK
      EXR(K)=1.0-EXP(-(C**2/S22))
   21 C=C+SA
      EW(1)=EXR(1)*AEV
      DO 22 K=2,NXIK
   22 EW(K)=(EXR(K)-EXR(K-1))*AEV
      XIK2=0.0
      DO 24 M=1,NXIK
      QE=NHI(M)
      EX=EW(M)
      XIK2=XIK2+((QE-EX)**2)/QE
   24 CONTINUE
      SH=SA
C      NX=NST-2
C      NY=9
   77 RETURN
      END
```