ALGORITHM 57
BER OR BEI FUNCTION
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real procedure BERBEI (r, z); value r, z; real r, z;
comment This procedure computes ber(z) if r is set equal to
zero. bei(z) is produced if r equals 1.0;
begin
  real s, k, c, f, t;
  if r = 0 then
    s := 1
  else
    s := (z × z)/4;
    k := s;
    f := z × z;
    t := f × f;
  for c := 2 step 2 until 100 do
    begin
      if s = s + k then
        go to gate;
        t := (c+r) × (c+r+1);
        k := -0.0025 × k × f/(t × t);
        s := s+k
      end;
    gate: BERBEI := s
  end BERBEI;

CERTIFICATION OF ALGORITHM 57
BER OR BEI FUNCTION [J. R. Herndon, Comm. ACM
4 (Apr. 1961)]
A. P. RELPH
The English Electric Co. Whetstone, England

Algorithm 57 was translated using the DECUS ALGOL compiler.
No corrections were required, and the results were satisfactory.

CERTIFICATION OF ALGORITHM 57
BER OR BEI FUNCTION [John R. Herndon, Comm.
ACM, Apr. 1961]
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The body of Algorithm 57 was tested on the LGP-30 using the
Algol 60 translator developed by the Dartmouth College Com-
puter Center. No syntactical errors were found. For z = 0.1(0.1)1.0,
with a 7+ significant decimal arithmetic routine, the program
gave results with errors less than 5 (and for z = 1(1)5 less than 12)
in the seventh digit. For large values of z, serious cancellation
errors may occur. For example, for z = 20, more than 2 decimals
of significance can be lost in this way.