ADAS Subroutine r8prov

```
      FUNCTION R8PROV ( N1 , L1 , N2 , L2 )
C
C
C-----------------------------------------------------------------------
C
C  ******************* FORTRAN77 FUNCTION: R8PROV **********************
C
C  PURPOSE:  APPROXIMATION TO HYDROGENIC OVERLAP INTEGRAL FOR CLASSICAL
C            BINARY ENCOUNTER SPIN CHANGE CROSS-SECTIONS FOR
c            MAX0(N,N1) LARGE.
C
C  NOTE   : SEE OVLP FOR THE GENERAL CASE
C
C  CALLING PROGRAM: GENERAL
C
C  FUNC  : (R*8)  R8PROV  = OVERLAP INTEGRAL
C
C  INPUT : (I*4)  N1      = FIRST N QUANTUM NUMBER.
C  INPUT : (I*4)  L1      = FIRST L QUANTUM NUMBER.
C  INPUT : (I*4)  N2      = SECOND N QUANTUM NUMBER.
C  INPUT : (I*4)  L2      = SECOND L QUANTUM NUMBER.
C
C  PARAM : (R*8)  P1      = 0.3
C
C          (I*4)  M       =
C
C          (R*8)  XN1     = REAL VALUE = N1.
C          (R*8)  XL1     = REAL VALUE = L1.
C          (R*8)  XN2     = REAL VALUE = N2.
C          (R*8)  XL2     = REAL VALUE = L2.
C          (R*8)  XM      = REAL VALUE = M.
C          (R*8)  BT      =
C          (R*8)  X1      =
C          (R*8)  X2      =
C          (R*8)  XK      =
C
C ROUTINES: NONE
C
C AUTHOR:   JONATHAN NASH (TESSELLA SUPPORT SERVICES PLC)
C           K1/0/81
C           JET EXT. 5183
C
C DATE:     04/10/93
C
C VERSION: 1.1                          DATE: 02-11-093
C MODIFIED: JONATHAN NASH
C               - FIRST RELEASE
C
C VERSION: 1.2                          DATE: 17-04-07
C MODIFIED: HUGH SUMMERS
C               - FIRST FULLY COMMENTED RELEASE
C
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C-----------------------------------------------------------------------
C
C-----------------------------------------------------------------------
      INTEGER             L1,          L2,          N1,          N2
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