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 C solving the triangle equations C  
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SUBROUTINE ATRDE (B, N, M, D, L)

DIMENSION B (M), D (N)

DOUBLE PRECISION B, D

L=1

IF (M. NE. (3\*N-2)) THEN

L=-1

WRITE (\*, 10)

RETURN

END IF

10 FORMAT (1X, ' ERR ')

DO 20 K=1, N-1

J=3\*K-2

IF (ABS (B (J)) + 1. 0. EQ. 1. 0) THEN

L=0

WRITE (\*, 10)

RETURN

END IF

B (J+1)=B (J+1) / B (J)

D (K)=D (K) / B (J)

B (J+3)=B (J+3) - B (J+2) \* B (J+1)

D (K+1)=D (K+1) - B (J+2) \* D (K)

20 CONTINUE

IF (ABS (B (3\*N-2)) + 1. 0. EQ. 1. 0) THEN

L=0

WRITE (\*, 10)

RETURN

END IF

D (N)=D (N) / B (3\*N-2)

DO 30 K=N-1, 1, -1

D (K)=D (K) - B (3\*K-1) \* D (K+1)

30 CONTINUE

RETURN

END

(AA, KBM, 3\*KBM-2, BB, L)

AA (3\*KBM-2) BB (KBM)

$$AAAA = \begin{bmatrix} b_1 & c_1 & & \\ a_1 & b_2 & c_2 & \\ & \ddots & \ddots & \ddots \\ & & a_{n-1} & b_{n-1} & c_{n-1} \\ & & & a_n & b_n \end{bmatrix}$$

$$\Rightarrow AA = \begin{bmatrix} b_1 \\ c_1 \\ a_2 \\ b_2 \\ c_2 \\ \vdots \\ a_n \\ b_n \end{bmatrix}$$

$$BB = \begin{bmatrix} f_1 \\ f_2 \\ \vdots \\ f_{n-1} \\ f_n \end{bmatrix}$$

$$AA = \begin{bmatrix} \vdots \\ a_i \\ b_i \\ c_i \\ a_{i+1} \\ b_{i+1} \\ c_{i+1} \\ \vdots \end{bmatrix} \begin{matrix} \rightarrow B(J) \\ \rightarrow B(J+1) \\ \rightarrow B(J+2) \\ \rightarrow B(J+3) \end{matrix}$$

$$\beta_i = \frac{c_i}{b_i}$$

$$y_i = \frac{f_i}{b_i}$$

$$b_i - a_i \cdot c_i$$

$$f_{i+1} - a_i \cdot f_i$$

$$\begin{bmatrix} b_1 \\ c_1 \\ a_2 \\ b_2 \\ c_2 \\ a_3 \\ b_3 \\ c_3 \\ \vdots \\ B \end{bmatrix} \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \end{matrix}$$

$$K=1 \quad J=1$$

$$c_1 = \frac{c_1}{b_1} = \beta_1$$

$$f_1 = \frac{f_1}{b_1}$$

$$b_2 = b_2 - a_2 \cdot c_1$$

$$f_2 = f_2 - a_2 \cdot f_1$$

$$K=2 \quad J=4$$

$$c_2 = \frac{c_2}{b_2}$$

$$f_2 = \frac{f_2}{b_2}$$

$$b_3 = b_3 - a_3 \cdot c_2$$

$$f_3 = f_3 - a_3 \cdot f_2$$

$$\frac{f_n - a_n \cdot y_{n-1}}{b_n - a_n \beta_{n-1}}$$

$$x_i = y_i - \beta_i x_{i+1}$$

$$B(3 \cdot K - 1)$$

$$\beta_i = \frac{c_i}{b_i - a_i \beta_{i-1}}$$

$$y_i = \frac{f_i - a_i y_{i+1}}{b_i - a_i \beta_{i-1}}$$

$$D(K)$$

$$c_k \rightarrow \beta_i$$

$$f_k \rightarrow y_i$$

$$b_{k+1} \rightarrow b_i - a_i \beta_{i-1}$$

$$f_{k+1} \rightarrow f_i - a_i y_{i+1}$$

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