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SP 2450

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% SUMSQUARE COMPUTES THE SUM OF THE SQUARES OF THE COMPONENTS OF AN ARBITRARY VECTOR

REAL SECTION COMPUTE, LISP;

```
REAL FUNCTION SUMSQUARE (X(I));  
  BEGIN INTEGER J; REAL Y;  
    FOR J ← 1 STEP 1 UNTIL I DO  
      Y ← Y + X(J) ↑ 2;  
    RETURN Y;  
  END;
```

SUMSQUARE (2, 7, 4); STOP

69.0

% LCS FINDS THE LONGEST COMMON SEGMENT OF TWO LISTS L1 AND L2

```

SYMBOL SECTION EXAMPLES, LISP;
FUNCTION LCS(L1,L2); SYMBOL L1, L2;
  BEGIN SYMBOL X, Y, BEST ← NIL; INTEGER K←0, N, LX←LENGTH(L1);
    FOR X ON L1 WHILE LX > K DO
      BEGIN INTEGER LY ← LENGTH (L2);
        FOR Y ON L2 WHILE LY > K DO
          BEGIN N ← COMSEGL (X,Y);
            IF N ≤ K THEN GO A;
            K ← N;
            BEST ← COMSEG (X,Y);
          A: LY ← LY - 1;
          END;
          LX ← LX - 1;
        END;
      RETURN BEST;
    END;
  END;

```

% COMSEGL FINDS THE LENGTH OF THE LONGEST COMMON SEGMENT OF TWO LISTS X AND Y.

```

INTEGER FUNCTION COMSEGL (X,Y);
  IF NULL X OR NULL Y OR CAR X /= CAR Y
    THEN 0 ELSE COMSEGL (CDR X, CDR Y) + 1;

```

% COMSEG FINDS THE LONGEST COMMON SEGMENT OF TWO LISTS X AND Y

```

SYMBOL FUNCTION COMSEG (X, Y);
  IF NULL X OR NULL Y OR CAR X /= CAR Y
    THEN NIL ELSE CAR X . COMSEG(CDR X, CDR Y);

```

% LENGTH COMPUTES THE LENGTH OF L

```

INTEGER FUNCTION LENGTH (L); SYMBOL L;
  BEGIN INTEGER K ← 0; SYMBOL L1;
    FOR L1 IN L DO K ← K+1;
  RETURN K;
  END;

```

```

LCS ('(A B C B C D E), '(B C D A B C D E F)); STOP
(B C D E)

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