

Passaggio parametri versione n. 1

- Scoping dinamico, MODE = IN per riferimento
- Scoping statico, MODE = OUT per riferimento

```
program p1
int q; int r; int s; int t;
procedure p2([IN OUT x rif] int t)
  int s;
    procedure p3([IN x copia] int s,[IN OUT x copia] int t)
      int r;
      BEGIN
        if t>0 then r=s+3 else r=t;
        if s>0 then s=1 else s=1;
        t=4;
        q=q-1;
        p4(s);
        write(q,r,s,t);
      END

    BEGIN
      s=4;
      t=1;
      q=r-4;
      r=q;
      p3(t, r);
      write(q,r,s,t);
    END

  procedure p4([MODE] int r)
    int t;
    BEGIN
      t=q;
      r=t*2;
      q=s+4;
      s=1;
      write(q,r,s,t);
    END

  BEGIN
    q=0;
    r=2;
    s=0;
    t=0;
    p2(q);
    write(q,r,s,t);
  END
```

Passaggio parametri versione n. 2

- Scoping dinamico, MODE = OUT per riferimento
- Scoping statico, MODE = IN OUT per copia

```
program p1
int a; int b; int c; int d;
  procedure p2([MODE] int a)
    int d; int c;
    BEGIN
      d=2;
      c=a;
      a=d;
      b=4;
      p3(a);
      write(a,b,c,d);
    END

    procedure p3([IN x copia] int d)
      int b; int c;
      procedure p4([IN OUT x rif] int c)
        int b; int a;
        BEGIN
          b=2;
          a=d*3;
          c=2;
          d=4;
          write(a,b,c,d);
        END

        BEGIN
          b=d*3;
          c=2;
          if a=5 then d=c else d=c;
          a=1;
          p4(b);
          write(a,b,c,d);
        END

      BEGIN
        a=0;
        b=2;
        c=3;
        d=4;
        p2(b);
        write(a,b,c,d);
      END
```

Passaggio parametri versione n. 3

- Scoping dinamico, MODE = OUT per riferimento
- Scoping statico, MODE = IN per riferimento

```
program p1
int a; int b; int c; int d;
  procedure p2([MODE] int a)
    int b;
      procedure p3([IN OUT x copia] int c)
        int d;
        BEGIN
          d=3;
          c=b;
          a=b*1;
          b=a;
          write(a,b,c,d);
        END

      procedure p4([IN OUT x copia] int b,[IN x copia] int a)
        int d;
        BEGIN
          if a=2 then d=a-2 else d=c*1;
          b=4;
          a=1;
          c=4;
          p3(a);
          write(a,b,c,d);
        END

      BEGIN
        b=c;
        a=d;
        c=1;
        d=2;
        p4(a, d);
        write(a,b,c,d);
      END

  BEGIN
    a=1;
    b=4;
    c=4;
    d=2;
    p2(b);
    write(a,b,c,d);
  END
```

Passaggio parametri versione n. 4

- Scoping dinamico, MODE = OUT per copia
- Scoping statico, MODE = IN per riferimento

```
program p1
int x; int y; int z; int t;
  procedure p2([IN OUT x rif] int t,[IN x copia] int z)
    int x;
      procedure p3([IN OUT x copia] int z,[MODE] int t)
        int y;
          procedure p4([IN OUT x rif] int x)
            int z; int t;
            BEGIN
              z=x;
              t=y;
              x=1;
              y=1;
              write(x,y,z,t);
            END

          BEGIN
            y=z;
            z=4;
            t=1;
            x=4;
            p4(y);
            write(x,y,z,t);
          END

        BEGIN
          x=3;
          t=y;
          z=1;
          y=1;
          p3(x, t);
          write(x,y,z,t);
        END

      BEGIN
        x=2;
        y=0;
        z=3;
        t=4;
        p2(y, t);
        write(x,y,z,t);
      END
```

Passaggio parametri versione n. 5

- Scoping dinamico, MODE = OUT per riferimento
- Scoping statico, MODE = IN per copia

```
program p1
int x; int y; int z; int t;
  procedure p2([IN OUT x copia] int y)
    int t;
    BEGIN
    t=y+1;
    y=z;
    z=z-4;
    x=2;
    write(x,y,z,t);
    END

  procedure p3([IN OUT x rif] int z)
    int t; int x;
    procedure p4([MODE] int t,[IN OUT x copia] int z)
      int y;
      BEGIN
      y=4;
      if t<20 then t=2 else t=2;
      z=t-2;
      x=1;
      p2(y);
      write(x,y,z,t);
      END

    BEGIN
    t=4;
    x=z;
    z=z-2;
    y=t;
    p4(z, t);
    write(x,y,z,t);
    END

  BEGIN
  x=4;
  y=1;
  z=4;
  t=0;
  p3(z);
  write(x,y,z,t);
  END
```

Passaggio parametri versione n. 6

- Scoping dinamico, MODE = OUT per copia
- Scoping statico, MODE = IN OUT per copia

```
program p1
int a; int b; int c; int d;
  procedure p2([IN x copia] int d,[MODE] int a)
    int c;
    BEGIN
      if b<9 then c=a+4 else c=3;
      d=3;
      a=c+1;
      b=1;
      write(a,b,c,d);
    END

    procedure p3([IN x copia] int b,[IN OUT x rif] int d)
      int c;
      procedure p4([IN OUT x rif] int a,[IN OUT x rif] int c)
        int b;
        BEGIN
          b=a;
          if c<1 then a=d else a=c;
          c=a;
          d=4;
          p2(a, c);
          write(a,b,c,d);
        END

        BEGIN
          c=1;
          if c>20 then b=c else b=a*2;
          d=a;
          a=3;
          p4(b, a);
          write(a,b,c,d);
        END

      BEGIN
        a=3;
        b=4;
        c=3;
        d=3;
        p3(d, b);
        write(a,b,c,d);
      END
```

Passaggio parametri versione n. 7

- Scoping dinamico, MODE = OUT per copia
- Scoping statico, MODE = IN OUT per riferimento

```
program p1
int x; int y; int z; int t;
  procedure p2([MODE] int y)
    int t;
    BEGIN
      t=y*4;
      y=z;
      x=t;
      z=2;
      p3(z);
      write(x,y,z,t);
    END

    procedure p3([IN OUT x copia] int y)
      int x; int z;
      BEGIN
        x=1;
        if y>0 then z=3 else z=y;
        y=1;
        t=3;
        write(x,y,z,t);
      END

      procedure p4([IN x copia] int x)
        int y; int t;
        BEGIN
          y=1;
          t=x+2;
          x=y;
          if x<0 then z=y-1 else z=1;
          p2(y);
          write(x,y,z,t);
        END

      BEGIN
        x=2;
        y=1;
        z=4;
        t=4;
        p4(z);
        write(x,y,z,t);
      END
```

Passaggio parametri versione n. 8

- Scoping dinamico, MODE = IN per riferimento
- Scoping statico, MODE = OUT per copia

```
program p1
int x; int y; int z; int t;
  procedure p2([MODE] int x)
    int t; int y;
      procedure p3([IN x copia] int z)
        int y; int t;
        BEGIN
          y=z;
          t=z;
          z=2;
          x=1;
          write(x,y,z,t);
        END

      procedure p4([IN OUT x rif] int t)
        int z; int x;
        BEGIN
          z=1;
          x=1;
          t=1;
          y=t;
          p3(x);
          write(x,y,z,t);
        END

      BEGIN
        if z>1 then t=4 else t=3;
        y=2;
        x=2;
        z=1;
        p4(z);
        write(x,y,z,t);
      END

  BEGIN
    x=2;
    y=1;
    z=3;
    t=1;
    p2(y);
    write(x,y,z,t);
  END
```