

Locality is the discussion of *scope*. The *scope* of a program variable is the range of statements in which the variable is *visible*. A variable is *visible* in a statement if it can be *referenced* in that statement.

```

1.  int main()
2.  {   int a,b;           //Locality main
3.      ...
4.      {   double c,d;    //Locality A
5.          ...
6.          {   bool b,e,f; //Locality B
7.              ...
8.          }
9.          {   float g,h;  //Locality C
10.             ...
11.          }
12.      }
13.      {   char i,j;      //Locality D
14.          ...
15.          {   int k,l;    //Locality E
16.              ...
17.          }
18.      }
19.      return 0;
20.  }
```

Figure 1. Program p01, example for scope of variables

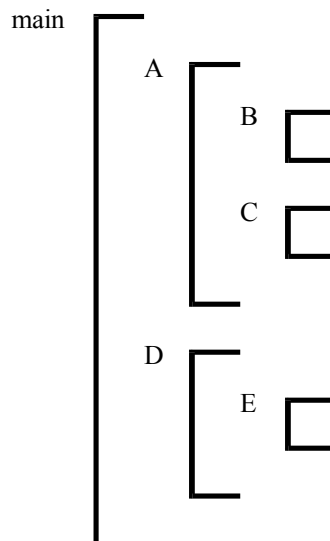


Figure 2. Program p01 locality structure.

Variable	Visible in localities	Visible on line numbers
<i>main.a</i>	<i>main, A, B, C, D, E</i>	2 – 20
<i>main.b</i>	<i>main, A, C, D, E</i>	2 – 5, 9 – 20
<i>A.c</i>	<i>A, B, C</i>	4 – 11
<i>A.d</i>	<i>A, B, C</i>	4 – 11
<i>B.b</i>	<i>B</i>	6 – 8
<i>B.e</i>	<i>B</i>	6 – 8
<i>B.f</i>	<i>B</i>	6 – 8
<i>C.g</i>	<i>C</i>	9 – 11
<i>C.h</i>	<i>C</i>	9 – 11
<i>D.i</i>	<i>D, E</i>	13 – 18
<i>D.j</i>	<i>D, E</i>	13 – 18
<i>E.j</i>	<i>E</i>	15 – 17
<i>E.j</i>	<i>E</i>	15 – 17

Table 1. Program **p01** visibility

Notes:

1. Variable *B.b* blocks variable *main.b*'s visibility in locality *B*.