PARAMETER PASSING METHODS

Parameter-passing methods are the ways in which parameters are transmitted to and/or from called subprograms.

Parameter passing depends on model of subprogram.There are two models for parameter passing-

1. Semantics Models of Parameter Passing
2. Implementation Models of Parameter Passing

1. Semantics Models of Parameter Passing: Formal parameters are characterized by one of three distinct semantics models:

1. They can receive data from the corresponding actual parameter, called in mode.
2. They can transmit data to the actual parameter, called out mode.
3. They can do both, called inout mode.

2. Implementation Models of Parameter Passing: This model consist the following ways of parameter passing.

1. Pass by value
2. Pass by reference
3. Pass-by-Result
4. Pass-by-Value-Result
5. Pass-by-Name

1. Pass by value: Value of actual parameter in read only mode is transmitted to formal

parameters.

2. Pass by reference: Reference/address of actual parameter is transmitted to formal parameters.

3. Pass-by-Result: When a parameter is passed by result, no value is transmitted to the subprogram.

4. Pass-by-Value-Result: Pass-by-value-result is an implementation model for inout-mode parameters. Pass-by-value-result is sometimes called pass-by-copy, because the actual parameter is copied to the formal parameter at subprogram entry and then copied back at subprogram termination.

5. Pass-by-Name: Pass-by-name is an inout-mode parameter transmission method. In it parameters are passed by name. Implementing a pass-by-name parameter requires a subprogram to be passed to the called subprogram to evaluate the address or value of the formal parameter.

Program examples:

Call by value:

```
#include <iostream>
using namespace std;
```

```
void show(int x)
{
   cout<<x<<endl;
}
int main()
{
   int age = 20;
   show(age);
   show(10);

   return 0;
}
```

Call by reference:

```
#include <iostream>
using namespace std;

void show(int *x)
{
   cout<<*x<<endl;
}
int main()
{
   int age = 20;
   show(&age);
```

```
    return 0;
}
```

References:

1. Sebesta,"Concept of programming Language", Pearson Edu
2. Louden, "Programming Languages: Principles & Practices" , Cengage Learning
3. Tucker, "Programming Languages: Principles and paradigms ", Tata McGraw –Hill.
4. E Horowitz, "Programming Languages", 2nd Edition, Addison Wesley

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