

Macro: Passing parameter by Value vs. by reference

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Objective

- ❖ What is it?
- ❖ How to apply it to **SAS** programming



What is it?

```
%macro Change_color(color=);
```

```
  %let &color=red;
```

```
  /* do more ... */
```

```
%mend;
```

```
%let mycolor=black;
```

```
%Change_color(color=&mycolor)
```

```
%put mycolor=&mycolor;
```

```
  mycolor=black
```

```
%Change_color(color=mycolor)
```

```
%put mycolor=&mycolor;
```

```
  mycolor=red
```

A parameter is passed by value.

We say a parameter is passed by reference when the name of a global macro variable is passed as the value of the parameter.

Applications

- Update values of multiple macro variables

```
%macro SomeCalc(rs1=, rs2=,...);
```

```
  /* do something here*/
```

```
  &rs1=...;
```

```
  &rs2=...;
```

```
%mend;
```

```
→ %let age=10;
```

```
→ %let weight=170;
```

```
%SomeCalc(rs1=age, rs2=weight,...)
```

Applications

- Track macro execution status

```
%macro myMac(return=,...);  
  %if some condition %then  
    %let &return=1;  
  %else  
    %let &return=2;  
%mend;
```

```
%let status=;  
%myMac(return=status, ...)  
  
data _null_;  
  if &status = 1 then  
    /* do something */  
  else if &status = 2 then  
    /* do something else */  
  else  
    /* do nothing */  
  
run;
```

Reference

Hsiwei Yu (Michael), Gary Huang: **Return Code From Macro;
Passing Parameter By Reference**

<http://www2.sas.com/proceedings/sugi28/080-28.pdf>



Questions?