

Chapter IV-3 — User-Defined Functions

Structures, including substructures, can be copied using simple assignment from one structure to the other. The source and destination structures must defined using the same structure name.

The **Print** operation can print individual elements of a structure or can print a summary of the entire STRUCT variable.

Structure Example

Here is a contrived example using structures. Try executing `foo(2)`:

```
Constant kCaSize = 5

Structure substruct
    Variable v1
    Variable v2
EndStructure

Structure mystruct
    Variable var1
    Variable var2[10]
    String s1
    WAVE fred
    NVAR globVar1
    SVAR globStr1
    FUNCREF myDefaultFunc afunc
    STRUCT substruct ss1[3]
    char ca[kCaSize+1]
EndStructure

Function foo(n)
    Variable n

    Make/O/N=20 fred
    Variable/G globVar1 = 111
    String/G aGlobStr="a global string var"

    STRUCT mystruct ms
        ms.var1 = 11
        ms.var2[n] = 22
        ms.s1 = "string s1"
        WAVE ms.fred // could have =name if want other than waves named fred
        NVAR ms.globVar1
        SVAR ms.globStr1 = aGlobStr
        FUNCREF myDefaultFunc ms.afunc = anotherfunc
        ms.ss1[n].v1 = ms.var1/2
        ms.ss1[0] = ms.ss1[n]
        ms.ca = "0123456789"
        bar(ms,n)
        Print ms.var1,ms.var2[n],ms.s1,ms.globVar1,ms.globStr1,ms.ss1[n].v1
        Print ms.ss 1[n].v2,ms.ca,ms.afunc()
        Print "a whole wave",ms.fred
        Print "the whole ms struct:",ms

        STRUCT substruct ss
            ss = ms.ss1[n]
            Print "copy of substruct",ss
    End

    Function bar(s,n)
        STRUCT mystruct &s
        Variable n

        s.ss1[n].v2 = 99
        s.fred = sin(x)
        Display s.fred
    End

    Function myDefaultFunc()
        return 1
    End

    Function anotherfunc()
        return 2
    End
```