
Subject: Re: passing functions as arguments in IDL?

Posted by [Martin Schultz](#) on Tue, 29 Feb 2000 08:00:00 GMT

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Benno Puetz wrote:

>
> David Fanning wrote:
>
>> Rick Baer (baer@hpl.hp.com) writes:
>>
>>> Is there any way to pass functions as arguments in IDL? I would
>>> like to be able to do something like this:

>>> ...

>>> IDL> print, tf1, f1, 4

>>

>> You can do this:

>>

>> function f1, x

>> return, x*x

>> end

>>

>> function tf1, func, arg

>> IF Size(func, /Type) NE 7 THEN BEGIN

>> Print, 'String argument required'

>> RETURN, -1

>> ENDIF

>> retVal = Call_Function(func, arg)

>> return, retVal

>> end

>>

>> IDL> print, tf1('f1', 4)

>>

>> Cheers,

>>

>> David

>> --

>

> Would it also be possible to pass argument lists of variable length,

> depending on the function to be called?

>

> I've tried the `_EXTRA` keyword but to no avail ...

>

Only if you don't exceed the number of arguments the underlying function can take

AND (in case you pass fewer than the maximum number of arguments) if the function is

written well enough to cope with an incomplete set of arguments.

Please find attached a program named loop.pro which illustrates this. Loop.pro is a wrapper routine that allows to call functions which accept only scalars with arrays as first argument.

Good luck,
Martin

```
--
[[
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[[
; $Id: loop.pro,v 1.10 1999/01/22 20:12:17 mgs Stab $
;-----
;+
; NAME:
;   LOOP
;
; PURPOSE:
;   This routine provides a wrapper for function calls that accept
;   only scalars so that they can operate on arrays.
;
; CATEGORY:
;   serious stuff
;
; CALLING SEQUENCE:
;   result = LOOP(name,arg,p1,p2,p3,p4)
;
; INPUTS:
;   NAME --> the name of the function (string)
;
;   ARG --> the argument (array)
;
;   P1 .. P4 --> optional function parameters
;
; KEYWORD PARAMETERS:
;   unfortunately none. Would be nice if _EXTRA would work.
;
; OUTPUTS:
;   a result *vector* with the same number of elements as arg.
;
```

```

; SUBROUTINES:
;
; REQUIREMENTS:
;
; NOTES:
;
; EXAMPLE:
;   a=[0.05,0.01,0.001]
;   print,loop("chisqr_cvf",a,17)
;
;   IDL prints:
;   27.5871   33.4087   40.7903
;
; MODIFICATION HISTORY:
;   mgs, 05 Dec 1997: VERSION 1.00
;
; -
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; please contact the author to arrange payment.
; Bugs and comments should be directed to mgs@io.harvard.edu
; with subject "IDL routine loop"
;-----

```

```
function loop,name,arg,p1,p2,p3,p4
```

```
  on_error,2 ; return to caller
```

```
  result = fltarr(n_elements(arg))
```

```

; print,n_elements(p1),n_elements(p2),n_elements(p3),n_elements(p4)
; call function with number of parameters supplied
; not very elegant but safe.
; (would probably look nicer with EXECUTE, but isn't that slower ?)

```

```

if (n_elements(p4) gt 0) then begin
  for i=0,n_elements(arg)-1 do $
    result(i) = call_function(name,arg(i),p1,p2,p3,p4)
  return,result
endif

```

```
if (n_elements(p3) gt 0) then begin
  for i=0,n_elements(arg)-1 do $
    result(i) = call_function(name,arg(i),p1,p2,p3)
  return,result
endif
```

```
if (n_elements(p2) gt 0) then begin
  for i=0,n_elements(arg)-1 do $
    result(i) = call_function(name,arg(i),p1,p2)
  return,result
endif
```

```
if (n_elements(p1) gt 0) then begin
  for i=0,n_elements(arg)-1 do $
    result(i) = call_function(name,arg(i),p1)
  return,result
endif
```

```
for i=0,n_elements(arg)-1 do $
  result(i) = call_function(name,arg(i))
return,result
```

end

File Attachments

1) [loop.pro](#), downloaded 118 times
