Subject: Making a function recursive

Posted by Brian Larsen on Sat, 02 Dec 2006 19:56:31 GMT

All,
I have been doing this for years and just wanted a bit of input from others as to if this the best way, possible dangers, another way, and all of this approach which does work. I don't recall exactly if this method came from my brain or another source so if you recognize it let me know that too.

The situation is you have a routine that can only operate on scalar input but you really want to put a vector into it. One example is reading a bunch of files from findfile() into a structure array or the like.

Here is a toy example that could undoubtedly be rewritten without this trick but there are others that cannot and follow the same template so this is short and will demonstrate the method.

```
function jd2string, jd

;; check to see if this called with an array input
;; and if so do this recursively
IF N_ELEMENTS(jd) GT 1  THEN BEGIN
   ;; get one answer so I don't have to know the return type or
structure tags
   ans = jd2string(jd[0])
   ;; replicate it so it is the same size as the input
   ans = replicate(ans, N_ELEMENTS(jd))
   ;; run through and do the operation on each element in the input
array
   FOR i=1l, N_ELEMENTS(jd)-1  DO BEGIN
     tmp = jd2string(jd[i])
     ans[i] = tmp
   ENDFOR
   ;; this is a vector answer from the vector input
   return, ans
ENDIF

;; this can be any function that only works on a scalar as written
caldat, jd, m, d, y, h, m
doy = fix(jd - julday(1, 1, y, h, m) + 1)
return, zeropad(y, 4) + "/" + zeropad(doy, 3) + "/" + zeropad(h, 2) +
":" + $
   zeropad(m, 2)
```

end

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here is a bit to test it so you don't have create a bunch of julian day
values
IDL> times = [2452079.0, 2452079.1, 2452079.2, 2452079.3, 2452079.4]
IDL> print, jd2string(times)
2001/168/12:00 2001/168/12:00 2001/168/18:00 2001/168/18:00
2001/169/00:00

Thanks for any advice,

-Brian

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