Subject: Re: Passing more than an initial guess to a function used by NEWTON
Posted by penteado on Thu, 24 Feb 2011 20:32:29 GMT
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On Feb 24, 5:13 pm, fgg <fabioguimaraesgoncal...@gmail.com> wrote:
> I'd like to solve an equation from within a procedure using Newton's method. e.g.
>
> pro my_procedure
> ...
> c1 = 3
> x_guess = 2
> result = newton(x_guess, 'my_function', itmax=100)
> print, result
> ...
> end
>
> ... but I'd like to pass to my_function (i.e. the equation to be solved by NEWTON) not only the initial guess, x_guess, but also a few constants that are being defined within my_procedure (e.g., c1). Is that possible? Here's an example of my_function:
>
> function my_function, x
> return, x^2 + 5*x - c1
> end

I encountered this issue in the past, and would be interested in a way
better than system or global variables. It would be so easy if
newton() had something like the uvalues used by widgets, or it called
a method on an object.

Subject: Re: Passing more than an initial guess to a function used by NEWTON
Posted by fgg on Thu, 24 Feb 2011 20:42:05 GMT
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Btw, the solution I came up with was to write an external "my_function.pro" file from within "my_procedure", before calling NEWTON. Something like this:

```
openw, outunit, '/.../my_function.pro', /get_lun
printf, outunit, 'function my_function, x'
printf, outunit, 'c1 = ', c1
printf, outunit, 'return, x^2 + 5*x - c1'
printf, outunit, 'end
close, outunit & free_lun, outunit'
```

But this just doesn't feel right... and I run into another problem, as you can see from my previous post:

https://groups.google.com/forum/?fromgroups#!topic/comp.lang .idl-pvwave/iuPqWCO_usI

Thanks again,
fgg

Subject: Re: Passing more than an initial guess to a function used by NEWTON
Posted by wlandsman on Thu, 24 Feb 2011 20:47:40 GMT
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>
> I encountered this issue in the past, and would be interested in a way
> better than system or global variables. It would be so easy if
> newton() had something like the uvalues used by widgets, or it called
> a method on an object.

Or if one could use the _EXTRA facilty to pass parameters to the function..

The problem is that these Numerical Recipes routines are written with great fidelity to the original 1992 C code, and so they don't take advantage of IDL capabilities that would make them easier to use.

Meanwhile, one must live with common blocks. --Wayne

Subject: Re: Passing more than an initial guess to a function used by NEWTON
Posted by penteado on Thu, 24 Feb 2011 21:10:33 GMT
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On Feb 24, 5:47 pm, wlandsman <wlands...@gmail.com> wrote:
> Or if one could use the _EXTRA facilty to pass parameters to the function..

Yes, that would probably be the most elegant simple way to pass the
arguments.

Subject: Re: Passing more than an initial guess to a function used by NEWTON
Posted by fgg on Thu, 24 Feb 2011 21:29:57 GMT
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Common blocks! Thanks for introducing me to it, Wayne. That will do it for now:

```
pro my_procedure
common share, c1
...
c1 = 3
x_guess = 2
result = newton(x_guess, 'my_function', itmax=100)
```

```
print, result
...
end

---------

function my_function, x
    common share
    return, x^2 + 5*x - c1
end
```

Subject: Re: Passing more than an initial guess to a function used by NEWTON
Posted by Jeremy Bailin on Fri, 25 Feb 2011 15:49:12 GMT
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Yes, I always use common blocks in those situations.
