
Subject: Re: A bug in MOD ?

Posted by [R.Bauer](#) on Sun, 26 Sep 2004 08:52:46 GMT

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Christopher Lee wrote:

```
> In article <cj1cqesgut$1@canarie.caspar.it>, "sandrokan"
> <mura@remove.ifs.rm.cnr.it> wrote:
>
>
>> I don't know much about libs, I only have IDL and another s/w: IDL>
>> print, 1.0 mod 0.1
>> 0.100000
>> but:
>>
>>>> mod(1.0, 0.1)
>> ans =
>>    0
>>>>
>
> Hi,
>
> Ah, matlab, wonderful matlab. I think Matlab uses arbitrary precision
> math. where this answer is correct. I could be wrong of course.
>
> The answer lies in the floating point representation of 1.0 and 0.1, or
> any number. One of the numbers are really what they appear (not sure
> which one) and the result is that ..
>
> floor(1.0/0.1)=9
> 1.0 mod 0.1 = 0.1
>
> ;these may not work in any known language, but they do show what's
> happening.
>
> Calculating 0.8 mod 0.1, you get the correct answer, because
> whatever representation error exists in 0.8 also exists in 0.1 .similarly
> for 1.0 and 0.5|0.25|0.125 (powers of 2).
>
> This is true of the IDL mod, the C++ fmod call (and probably the C
> library fmodf call, as its used internally in C++), the fortran mod
> function, the python mod function, etc.
>
> I'm not sure what the correct method would be. I can't really round a
> value to zero when the value is comparable to the denominator in the
> 'mod' equation. It gets worse when I realize I've used 'mod' on a
> floating point before, in FORTRAN code.
>
```

> Chris.

Dear Chris,

mod in Fortran and mod in IDL is not the same.

```
; PROCEDURE:  
; modulo(a,b) = a - FLOOR(a/b)*b instead of  
; a MOD b = a - LONG(a/b)*b
```

You could try:

[http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase
calc_modulo_dbase.pro.html](http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase_calc_modulo_dbase.pro.html)

cheers

Reimar

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Forschungszentrum Juelich
email: R.Bauer@fz-juelich.de
<http://www.fz-juelich.de/icg/icg-i/>

=====

a IDL library at ForschungsZentrum Juelich
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro.html
