Subject: Re: rounding errors
Posted by Paul van Delst on Wed, 02 May 2001 16:46:55 GMT
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James Kuyper wrote:
>
> Paul van Delst wrote:
>>
>> Randall Skelton wrote:
>>>
>>> On Fri, 27 Apr 2001, Liam E. Gumley wrote:
>>>
>>>> This is a subtle but important point. DOUBLE() is a type conversion
>>>> function, and
>>>>
>>>> a = double(2.348339)
>>>>
>>>> shows a FLOAT argument being converted to a DOUBLE. The safest way to
>>>> 'cast' a double variable is
>>>>
>>>> a = 2.348339d
>>> [snip]
>>>
>>> Wow... I am glad that I have now learned that particular 'IDL feature'
>>> early on in my PhD. Just yesterday, I convinced the department that we
>>> really need a few good IDL programming books as the current
>>> 'learning-by-fire' approach could have some unfortunate consequences ;)
>>
>> This "feature" has absolutely *nothing* to do with IDL. The same thing occurs in other
>> languages, e.g. Fortran, C, etc. Floating point numbers, in general, cannot be represented
>> exactly and you have to keep that in mind when writing code
>
> I think you're misunderstanding the "feature" of IDL that surprised me
> as much as it surprised Randall and Liam. This has everything to do with
> IDL, and nothing to do with expecting exact representation of a
> finite-length decimal fraction. By default, in C 2.348339 represents a
> double precision number, not a single precision one, and I'd never
> realized that the IDL convention was different.

Ahh, I see. I guess it depends on what you started with. I code in Fortran mostly so when I think "default floating point number" I think single-precision. In Fortran at least (and by association IDL??), that convention _probably_ grew out of memory limitations of computers and whatnot back in olden day. Nowadays it (mostly) doesn't matter I guess.

I wonder what other languages use as a default? (e.g. Matlab sticks everything in double doesn't it? Probably strings as well.... :o)

paulv

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A little learning is a dangerous thing;
Drink deep, or taste not the Pierian spring;
There shallow draughts intoxicate the brain,
And drinking largely sobers us again.
Alexander Pope.
