Subject: Re: fix(4.70*100) is... 469

Posted by Paul Van Delst[1] on Thu, 19 Apr 2007 19:06:48 GMT

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b_efremova@yahoo.com wrote:

> I'll try one more time, see if it works.

>

- > Here is my initial statement:
- > When I handle a floating point number, 470.000
- > it better stay the same number with the precision I use it.

>

- > perfectly fine with me if when used with a floating point precision
- > it is rounded to 470.000

- > OK, so if I do something, like
- > converting 470.00 to double. I have no right to complain when
- > the number I get is 469.999999999999435462346 with any
- > arbitrary numbers in the digits exceeding the precision I had
- > provided.

>

- > On the other side, I would expect when I use this number with the
- > provided precision or lower to matter if I had given the number
- > 470.000 or 469.999.

What do *you* mean by "provided precision"?

- > In short, when converting my number to something of lower precision
- > like integer
- > I would expect the number to be rounded.

What you expect and what actually happens is demonstrably (and reproducably) different. There are several ways to "convert" a floating point number to an integer. Rounding is just one way.

> but the integer of 469.9999 is 469. which is not true.

- > I also had the wrong assumption that FIX will FIRST round the number
- > to the precision I'm
- > working with and THEN truncate.
- > Now when I think of this, it is not very intelligent assumption.
- > Well, I did it.

Ah, well. We are now in the realm of the lessons learnt in the school of hard knocks. :o) It can be a royal pain in the rear end, but it can be good way of learning things -- we tend not to forget the associated blood, sweat and tears.

> On the other hand I still think that

```
>
> print,469.9999,format='(i3)'
> should be
> 470
> but it is 469 insted.
> What is wrong about this assumption of mine?
It's simply another syntax for
IDL> print, INT(469.999)
      469
Computers have zero intelligence - you have to ask them to do *exactly* what you want.
There's no way for the circuitry to divine that while you actually said something like
 INT(469.999)
you really meant
 ROUND(469.999)
(or vice versa)
Many a program has crashed in a big hairy heap on the floor because of this type of
assumption.
Have a read of:
 http://docs.sun.com/source/806-3568/ncg_goldberg.html
and check out
 http://tinyurl.com/2wnggj
from your library.
cheers,
paulv
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CIMSS @ NOAA/NCEP/EMC

Ride lots.

Paul van Delst

Eddy Merckx