Subject: Re: Inaccuracies
Posted by Jackel on Tue, 14 Nov 1995 08:00:00 GMT
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In article <30A7BC4D.7018@cdc.noaa.gov> Andy Loughe <afl@cdc.noaa.gov> writes:

> Ok, I am sure this has been discussed before, but let
> me start this thread again. I wish to create a 15-element
> vector which contains the numbers -1.4 to 1.4 by an increment
> of 0.2 I also wish the sum of these elements to be zero
> (No, this isn't the new math). Here is what I tried...

Well, this works:
  a= (INDGEN(29) - 14) / 10.0d0

but that still doesn't address the fundamental problem. Start with

  a= 7.0d0 * 0.2d0 which when PRINTed gives 1.4000000

then

  b= a - 1.4000000d0 when PRINTed gives 2.2204460e-016

but

  c= a
  b= a - c gives 0.0

(note that c= 1.400000d0, then b=a-c gives a non-zero result). So, it
looks like the internal representation of 7.0d0*0.2d0 is not quite 1.4,
but for display purposes IDL does a bit of rounding (truncation?).

So, try

 PRINT,a,FORMAT='(f27.25)'

and get

 1.4000000000000001000000000

which has a 1d-16 difference. The rest of the puzzle is solved by PRINTing
1.4d0 (with the FORMATing as above):

 1.3999999999999999000000000

Basically, it looks like a combination of the usual representation error,
combined with a short default format for output.

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