Subject: Re: DOUBLE trouble
Posted by Axel vom Endt on Tue, 09 Mar 1999 08:00:00 GMT
View Forum Message <> Reply to Message

Hi Jacco,

there are two things going on:

IDL like most programming languages uses hardware floating point numbers. On all machines I've ever used that means using binary fractions. 3.0 becomes 11.0 (which then will be stored as .11 in the mantissa). 3.1 becomes a periodic binary fraction 11.0001100110011 which cannot be stored without roundoff error. I hope I got the numbers right, but this is explained in any textbook on numerical methods.

The second issue is printing in IDL. Try using an explicit FORMAT statement

```
IDL> print, 3.1d0, format='(f60.55)'
   3.1000000000000000888178419700125232338905334472656250000
IDL> print, 3.1e0, format='(f60.55)'
   3.0999999046325683593750000000000000000000000000000000000
```

and you'll see that neither double nor single precision will be exactly 3.1

Axel