Subject: Re: machine precision
Posted by David Fanning on Mon, 18 May 2009 13:30:42 GMT
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Wox writes:

> Ow boy, sorry for bringing this up again, but in the last example
> given in your famous article, why is:
>
> f=470.0 - (4.70*100)
> d=470d - (4.70d*100)
> print,'Bigger than precision:',f,(machar()).eps
> print,'Smaller than precision:',d,(machar(/double)).eps
>
> I understand that when you give 4.7 to a computer, it stores a number
> close to it. When given 4.70d, the same thing happens, only now we're
> closer than with single-precision. Why is the machine precision (EPS
> from machar) not reflecting this?

I think the MACHAR values *do* reflect this. But the point
is, when you compare two numbers that are nearly equal
to each other, the *difference* can easily happen in
the significant digits that can be garbage (or, rather,
undefined) in a floating point number. That is to say,
the difference can be in the part of the number that is
beyond the realm of floating point accuracy.

Cheers,

David

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Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")