Subject: Re: Comparing 2 arrays
Posted by Paul Van Delst[1] on Tue, 28 Aug 2007 18:43:18 GMT
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David Fanning wrote:
> Jean H. writes:
>
>> to get back to a previous discussion we had a few month ago about being
>> "sufficiently close to zero", shouldn't it be (data1.A - data2.B) LT
>> epsilon * data1.A , with epsilon=(machar()).eps?
>
> OK, I found that discussion and read it eight or ten times until
> I finally understood it. (Probably why I forgot it before.)
>
> I've put a significantly edited discussion of this
> problem here:
>
> http://www.dfanning.com/code_tips/comparearray.html
>
> In my preferred solution now, I choose a number that
> is "sufficiently close" to zero like this:
>
> epsilon = (MACHAR()).eps
> NUMBER = (array_1 > array_2) * epsilon
>
> Then, the comparison between arrays is done like this:
>
> IF Total(Abs(array_1 - array_2) LT NUMBER) EQ N_Elements(array_1) $
> THEN RETURN, 1 ELSE RETURN, 0
>
> Additional comments welcome if you want to argue further. :-)

Sure! :o)

I think you should also pass a scaling factor, ala,

```
FUNCTION FLTARRAYS_EQUAL, array_1, array_2, ULP=ulp
  ....
  IF ( N_ELEMENTS(ulp) EQ 0 ) THEN ulp=1.0
  ....
  NUMBER = (array_1 > array_2) * epsilon * ulp
  ....
END
```

Also, there needs to be differentiation for singel and double precision so you can determine epsilon correctly and set ulp to a suitable default (1.0 or 1.0d0).

cheers,

paulv

>
> Cheers,
>
> David
