Subject: Re: Subtracting a single variable from an array
Posted by Brian Daniel on Wed, 07 Jul 2010 17:50:49 GMT
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On Jul 7, 1:04 pm, polystethylene <polystethyl...@hotmail.com> wrote:
> Hello all,
>
> I'm faced with one of those problems that seems so absurdly simple
> that I have no angle of attack in terms of investigating the blighter;
> it's such a simple thing and yet it's falling over, and I can't for
> the life of me see why.
>
> Here's what's going on:
>
> I'm creating a sin wave out a time array, where the argument is (t-
> t0), where t0 is the first entry of the array.
>
> tlist = input[0,*,a]
> tfirst = input[0,0,a]
> targ = (tlist - tfirst)
>
> injectlc = medianflux +
> (lcamp[i]*medianflux)*(sin(lcomega*(targ) + lcphase[i]))
>
> The actual line putting the sine wave together doesn't matter, I put
> it there for completion's sake.
>
> Printing the array gives me:
>
> IDL> print,input[0,*,a]
> 5158.3722
> 5158.3731
> 5158.3740
> etc...
>
> as I'd expect.
>
> Printing tfirst gives me:
>
> IDL> print,tfirst
> 5158.3722
>
> So all is well.
>
> However, if I print:
>
> IDL> print,(input[0,*,a]-tfirst)
> 0.0000000

>
> What's the deal here?
>
> If I print:
> IDL> print,(input[0,*,a]-5158.3722)
> 0.00013553243
> 0.0010267878
> 0.0019064685
> 0.0027861492
> 0.0036774046
> etc...
>
> It works. So how come I can subtract the value by typing it out
> explicitly, but can't type the variable containing the same info?
>
> The array is a double array, and consequently tfirst is a double. I
> presume subtracting the value by typing it means I'm subtracting a
> float instead of a double, but why would that matter? Even if
> consistency was an issue, shouldn't it be subtracting the double that
> works, not the float?
>
> IDL> help,(input[0,*,a])
> <Expression> DOUBLE = Array[1, 359]
>
> IDL> help,tfirst
> TFIRST DOUBLE = Array[1]
>
> I also tried REFORMing the array to cut out the excess extra dimension
> before subtracting tfirst, but no luck.
>
> I swear I've spent the vast majority of my brief IDL career doing
> subtractions from arrays in much the same way, so what's wrong here?
>
> Advanced thanks to the person who spots my stupid mistake, puts the
> dunce cap on me and sends me to the corner.

We've all been there. In fact, I've had this very same problem several times.

TFIRST is an array currently. When you're subtracting, IDL thinks you're doing element by element subtraction. Use [0] on your TFIRST definition or your subtraction call to make it scalar.

Quick example of your current problem:

```
IDL> input=[[5158.3722d],[5158.3731d],[5158.3740d]]
IDL> tfirst=[input[0,a]]
IDL> targ=input[0,*]-tfirst
IDL> print,targ
```

```
      0.0000000
IDL> help,tfirst
TFIRST          DOUBLE    = Array[1]
```

Note that I used [] to make my TFIRST match your TFIRST. (Is that a discrepancy between IDL Versions? I'm using IDL 7.1.)

One solution is in the subtraction call:

```
IDL> targ=input[0,*]-tfirst[0]
IDL> print,targ
      0.0000000
  0.00090000000
   0.0018000000
IDL> IDL> help,tfirst
TFIRST          DOUBLE    = Array[1]
```

Another is in the TFIRST definition:

```
IDL> tfirst = (input[0,a])[0]
IDL> help,tfirst
TFIRST          DOUBLE    =       5158.3722
```

Hope that squashed the bug.
-Brian
