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Subject: Re: Arrays with complex index ?

Posted by [Liam Gumley](#) on Sat, 04 Dec 1999 08:00:00 GMT

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Henrik E. Nilsen wrote:

> Anyone know if there's a way to reference a floating point array using a  
> complex number?  
>  
> what I would like to do is something like:  
>  
> cnum=complex(5,5) & cnum2=complex(2,3) & fnum=10.7  
> arr=fltarr(cnum)  
> arr[cnum2]=fnum  
>  
> and not:  
>  
> arr=fltarr(5,5)  
> arr[float(cnum),imaginary(cnum)]=fnum  
>  
> I suspect that this is not possible. Does anyone know how time  
> consuming the 'float' and 'imaginary' commands are? (I'm using these  
> statements at the core of a loop structure, and so any savings in time are  
> important)

Regarding the use of a complex variable as an array subscript, here's what the documentation says (Building IDL applications; Subscript Examples):

"Subscripts can be any type of vector or scalar expression. If a subscript expression is not integer, a longword integer copy is made and used to evaluate the subscript."

Thus the following statements are legal, but only the real part of the complex number is used to form the subscript:

```
IDL> arr = indgen(10)
IDL> index = complex(1.0, 2.0)
IDL> help, long(index)
<Expression> LONG = 1
IDL> help, arr[index]
<Expression> INT = 1
```

The second example you gave looks fine to me, e.g.

```
arr = fltarr(5,5)
arr[float(cnum),imaginary(cnum)] = fnum
```

I don't think there's any great time penalty incurred by using `float()` and `imaginary()`. You'll gain much more speed by finding a way to express your

algorithm in array operations rather than loop operations.

Cheers,

Liam.

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