
Subject: Re: scalar system variable as single element array
Posted by [lecacheux.alain](#) on Sun, 13 May 2012 23:58:52 GMT
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On 13 mai, 22:00, fawltylangu...@gmail.com wrote:

> Hi guys,
>
> the IDL help says that a scalar can be considered a single element array. So why is the
following expression failing?
>
> IDL> help, !pi[0]
> % Expression must be an array in this context: !PI.
> % Execution halted at: \$MAIN\$
>
> Is it a bug or feature :-)
>
> regards,
> Lajos
>
>

Because, in IDL, as far as I know, scalar and array are two different things!

!pi is not an array, but [!pi] is. If a scalar could be considered as a single element array, the IDL implicit dimension rule would fail:

```
IDL> help,indgen(10) + !pi  
<Expression>  FLOAT  = Array[10]  
IDL> help,indgen(10) + [!pi]  
<Expression>  FLOAT  = Array[1]
```

Conversely, a single element array cannot be considered as a scalar, unless you explicitly address it:

```
IDL> help,indgen(10) + ([!pi])[0]  
<Expression>  FLOAT  = Array[10]
```

Cheers,
alx.

Subject: Re: scalar system variable as single element array
Posted by [Lajos Foldy](#) on Mon, 14 May 2012 06:23:24 GMT
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On Monday, May 14, 2012 1:58:52 AM UTC+2, alx wrote:

> Because, in IDL, as far as I know, scalar and array are two different
> things!

As I wrote scalars can be considered as single element array (in subscript expressions). From IDL help:

Notice that because a scalar can be considered a single element array, subscripting a scalar with -1 (indicating the last element of the array) is equivalent to subscripting the scalar with 0 (indicating the first element of the array). For example:

```
scalar = 3
```

```
PRINT, scalar, scalar[0], scalar[-1]
```

IDL prints:

```
3 3 3
```

You can even write `scalar[0, 0:0, *, -1:-1:1]`. Now replace `scalar` with `!PI`.

regards,
Lajos

Subject: Re: scalar system variable as single element array
Posted by _____ on Mon, 14 May 2012 06:31:02 GMT
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Den söndagen den 13:e maj 2012 kl. 22:00:31 UTC+2 skrev fawltyl...@gmail.com:

```
> Hi guys,  
>  
> the IDL help says that a scalar can be considered a single element array. So why is the  
> following expression failing?  
>  
> IDL> help, !pi[0]  
> % Expression must be an array in this context: !PI.  
> % Execution halted at: $MAIN$  
>  
> Is it a bug or feature :-)  
>  
> regards,  
> Lajos
```

This works with variables but `!pi` is not a variable. Think of it as a constant, like the number 2:

```
IDL> a=!pi  
IDL> help,2,!pi,a  
<Expression> INT = 2  
<Expression> FLOAT = 3.14159  
A FLOAT = 3.14159  
IDL> help,a[0]  
<Expression> FLOAT = 3.14159  
IDL> help,(2)[0],(!pi)[0]
```

<Expression> INT = 2
<Expression> FLOAT = 3.14159
