
Subject: Summer "English" heat or just me: Array slicing

Posted by [ameigs](#) on Tue, 23 Jul 2013 15:51:10 GMT

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I'm betting this is too easy, but having been away from my work computer for several weeks I think dementia has set in:

Here's a simple array:

```
IDL> a = [[1,2,3,4,5,6],[7,8,9,10,11,12]]
```

```
IDL> help, a
```

```
A          INT      = Array[6, 2]
```

```
IDL> print, a
```

```
  1    2    3    4    5    6
  7    8    9   10   11   12
```

I want to get just the indices of dim 0 and dim 1 I need from a list of indices. So I tried this:

```
IDL> print, a[[0,3,5],[0]]
```

```
% All array subscripts must be same size. Var = A
```

But this works

```
IDL> print, a[[0,3,5],0]
```

```
  1    4    6
```

```
IDL> print, a[[0,3,5],1]
```

```
  7   10   12
```

```
IDL>
```

```
IDL> print, a[[0,3,5],0:1]
```

```
  1    4    6
  7   10   12
```

```
IDL>
```

And this does not:

```
IDL> print, a[[0,3,5],[0,1]]
```

```
% All array subscripts must be same size. Var = A
```

```
% Execution halted at: $MAIN$
```

What have I forgotten?

Andy

Subject: Re: Summer "English" heat or just me: Array slicing

Posted by [Fabzi](#) on Tue, 23 Jul 2013 16:12:20 GMT

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On 07/23/2013 05:51 PM, ameigs wrote:

> What have I forgotten?

That what you want could have another meaning in IDL. Try this:

```
IDL> print, a[[0,3,5],[0,1,0]]
```

But this will do what you want:

```
IDL> print, a[[0,3,5]#[1,1],[0,1]##[1,1,1]]
```

I don't know if there is another solution.

Cheers,

Fab

Subject: Re: Summer "English" heat or just me: Array slicing

Posted by [Lajos Foldy](#) on Tue, 23 Jul 2013 16:16:39 GMT

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On Tuesday, July 23, 2013 5:51:10 PM UTC+2, ameigs wrote:

> I'm betting this is too easy, but having been away from my work computer for several weeks I think dementia has set in:

>

>

>

> Here's a simple array:

>

> IDL> a = [[1,2,3,4,5,6],[7,8,9,10,11,12]]

>

> IDL> help, a

>

> A INT = Array[6, 2]

>

> IDL> print, a

>

> 1 2 3 4 5 6

>

> 7 8 9 10 11 12

>

>

>

> I want to get just the indices of dim 0 and dim 1 I need from a list of indices. So I tried this:

>

> IDL> print, a[[0,3,5],[0]]

>

> % All array subscripts must be same size. Var = A

>

>

>

```
> But this works
>
> IDL> print, a[[0,3,5],0]
>
>      1      4      6
>
> IDL> print, a[[0,3,5],1]
>
>      7     10     12
>
> IDL>
>
> IDL> print, a[[0,3,5],0:1]
>
>      1      4      6
>
>      7     10     12
>
> IDL>
>
> And this does not:
>
> IDL> print, a[[0,3,5],[0,1]]
>
> % All array subscripts must be same size. Var = A
>
> % Execution halted at: $MAIN$
>
>
> What have I forgotten?
>
>
> Andy
```

If all subscripts are array subscripts, then their sizes must be equal.

regards,
Lajos

Subject: Re: Summer "English" heat or just me: Array slicing
Posted by [Phillip Bitzer](#) on Tue, 23 Jul 2013 16:45:57 GMT
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This works:

```
IDL> print, a[[0,3,5],[0,1], 0]
```

```
  1    4    6
  7   10   12
```

See the discussion here: https://groups.google.com/d/msg/comp.lang.idl-pvwave/Vu9rzqcKBNQ/HvkK_QnJrsgJ

Subject: Re: Summer "English" heat or just me: Array slicing

Posted by [Fabzi](#) on Wed, 24 Jul 2013 13:44:46 GMT

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On 07/23/2013 06:45 PM, Phillip Bitzer wrote:

> This works:

>

> IDL> print, a[[0,3,5],[0,1], 0]

> 1 4 6

> 7 10 12

>

> See the discussion here: https://groups.google.com/d/msg/comp.lang.idl-pvwave/Vu9rzqcKBNQ/HvkK_QnJrsgJ

>

Wow, this is another incredible newsgroup discussion that deserves to be archived! Thanks!

Subject: Re: Summer "English" heat or just me: Array slicing

Posted by [David Fanning](#) on Wed, 24 Jul 2013 13:46:31 GMT

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Fabien writes:

> Wow, this is another incredible newsgroup discussion that deserves to be

> archived! Thanks!

I would if I understood it. :-(

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>

Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: Summer "English" heat or just me: Array slicing
Posted by [Fabzi](#) on Wed, 24 Jul 2013 13:57:27 GMT
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On 07/24/2013 03:46 PM, David Fanning wrote:
> I would if I understood it. :-{

This is what you said 14 years ago ;-)

I think I understood this part:

;--Quoting Henry Chapman-----

There are two behaviours you may want when you try result = array[x,
y,..., z], and x, y, ..., z are 1-d arrays:

1. return a 1-d array with result[i] = array[x[i], y[i],..., z[i]]
2. return a 2-d array with result[i, j,..., k] = array[x[i],
y[j],...,z[k]]

IDL does (1), which requires x, y,...,z all have the same length.
However, IDL does (2) if one of the dimensions is a subscript range.
Since a single number is a subscript range, it will do (2) in that
case. And since 0, written in as an extra dimension is also a subscript
range, IDL will use behaviour (2)

;-----

I must admit that I am only really rarely confronted to cases where I
can use this, but it is good to know...

Subject: Re: Summer "English" heat or just me: Array slicing
Posted by [David Fanning](#) on Wed, 24 Jul 2013 14:19:24 GMT
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Fabien writes:

> This is what you said 14 years ago ;-)

Sigh... My life wasted.

> I think I understood this part:

>

> ;--Quoting Henry Chapman-----

>

> There are two behaviours you may want when you try result = array[x,
> y,..., z], and x, y, ..., z are 1-d arrays:

>

> 1. return a 1-d array with result[i] = array[x[i], y[i],..., z[i]]
> 2. return a 2-d array with result[i, j,..., k] = array[x[i],
> y[j],...,z[k]]
>
> IDL does (1), which requires x, y,...,z all have the same length.
> However, IDL does (2) if one of the dimensions is a subscript range.
> Since a single number is a subscript range, it will do (2) in that
> case. And since 0, written in as an extra dimension is also a subscript
> range, IDL will use behaviour (2)
> ;-----
>
> I must admit that I am only really rarely confronted to cases where I
> can use this, but it is good to know...

I think this has to do with an "index threading" article JD wrote,
although I can't find a reference to it right now.

I guess I do understand it. Sorta. I just don't want to have to explain
it to anyone. :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: Summer "English" heat or just me: Array slicing
Posted by [Fabzi](#) on Wed, 24 Jul 2013 14:25:37 GMT

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On 07/24/2013 04:19 PM, David Fanning wrote:

> I guess I do understand it. Sorta. I just don't want to have to explain
> it to anyone.:-)

This would be a good moment for Mark or Chris to jump in and indicate us
the right page of the IDL documentation where this behaviour is described!

Subject: Re: Summer "English" heat or just me: Array slicing
Posted by [David Fanning](#) on Wed, 24 Jul 2013 14:30:13 GMT

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Fabien writes:

> This would be a good moment for Mark or Chris to jump in and indicate us
> the right page of the IDL documentation where this behaviour is described!

Well, the deed was done well before their time. It would be like trying to explain how the Contour procedure works. Who knows!? No one in their right mind would look into it now. :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>

Sepore ma de ni thue. ("Perhaps thou speakest truth.")
