Subject: Re: Undocumented array indexing feature?
Posted by wbiagiot on Thu, 21 Jan 1999 08:00:00 GMT
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Liam,

Actually, I don't remember seeing this feature documented either, but I use it quite extensively to access individual indices from procedure/functions that return an array (such as "WHERE", "SIZE", etc.) Since the data that you've enclosed in parameters constitutes an array (a subset of your original array actually), you are further indexing into the new 'subarray'.

An example:

Retrieve the 3rd nonzero element of integer array 'a':

a = [1,0,2,0,3,4,5,6]
result = (WHERE(A))[2] ; array indexing starts from 0

result should equal 3.

If the format of this post is lousy, it is because it is my very first within the newsgroups. Help this helps.

BTW - message to D. Fanning. Your web site has been a tremendous service to me and I have learned many concepts from you. Many thanks.

Bill B.

Subject: Re: Undocumented array indexing feature?
Posted by Craig Markwardt on Thu, 21 Jan 1999 08:00:00 GMT
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Liam Gumley <Liam.Gumley@ssec.wisc.edu> writes:
>
> Here's a way to index an array I hadn't seen before:
>
> a = indgen(10,10)
> x = [3,5,8,9]
> y = [2,7]
> print, (a[x,*])[*,y]
> 23 25 28 29
> 73 75 78 79
>
> Does anyone know where this feature (i.e. enclosing an array with
> parentheses and appending an index) is documented? I couldn't find it in
> my printed IDL 5.0 documentation.

It's not really an array indexing feature per se. In your example, a temporary expression is first created from a[x,*], and then *that* temporary expression is indexed according to [*,y]. Internally, IDL must do some more copying than straight array indexing, so your operation is not as efficient. On the other hand it probably does what you want. I like it!

By the way, indexing of expressions is allow, as long as you throw a pair of parentheses around it. The following sometimes appears in my code:

n = (size(x))[0]

The result of size(x) is an array; this statement takes the first element of that array.

Craig

--

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@astrog.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---

Subject: Re: Undocumented array indexing feature?
Posted by Robert S. Hill on Fri, 22 Jan 1999 08:00:00 GMT
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On Fri, 22 Jan 1999, J.D. Smith wrote:
>> Liam Gumley wrote:
>>> Here's a way to index an array I hadn't seen before:
>>>
>>> print, (a[x,*])[*,y]
> It doesn't work for everything though... as evidenced by:
> z=5+6*(y=8)
> JD

Ah, but try

z=5+6*((y=8))

I guess it ain't C, is it? Offhand, I can't think of a way to make this seem like consistent syntax.

Bob Hill

--
Robert.S.Hill.1@gsfc.nasa.gov Phone: 301-286-3624
Raytheon ITSS / Code 681, NASA/GSFC, Greenbelt, MD 20771

Subject: Re: Undocumented array indexing feature?
Posted by J.D. Smith on Fri, 22 Jan 1999 08:00:00 GMT
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Liam Gumley wrote:
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> Liam Gumley wrote:
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> To answer my own question, a careful reading of Chapter 5 of 'Building
> IDL Applications' p. 60
> (ftp://ftp.rsinc.com/pub/idl_5.2/info/docs/building.pdf)
> revealed the following:
>
> "The syntax of a subscript reference is:
> Variable_Name[Subscript_ List]
> or
> (Array_Expression)[Subscript_List]"
>
> Thanks to Bill and Craig for their replies.
>

Array indexing isn't the only place parentheses are useful...

try this sometime:

a=(b=(c=1))

Basically, parentheses just instruct the command parser to iterate as
many times as necessary to remove them all. Other examples:

print,(x=5)

It doesn't work for everything though... as evidenced by:

z=5+6*(y=8)

JD

--
J.D. Smith |*| WORK: (607) 255-5842
Cornell University Dept. of Astronomy |*| (607) 255-6263
304 Space Sciences Bldg. |*| FAX: (607) 255-5875
Ithaca, NY 14853 |*|

Subject: Re: Undocumented array indexing feature?
Posted by Liam Gumley on Fri, 22 Jan 1999 08:00:00 GMT
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"The syntax of a subscript reference is:
Variable_Name[Subscript_ List]
or
(Array_Expression)[Subscript_List]"

Thanks to Bill and Craig for their replies.

Liam E. Gumley

Space Science and Engineering Center, UW-Madison
1225 W. Dayton St., Madison WI 53706, USA
Phone (608) 265-5358, Fax (608) 262-5974
http://cimss.ssec.wisc.edu/~gumley

Subject: Re: Undocumented array indexing feature?
Posted by wbiagiot on Mon, 25 Jan 1999 08:00:00 GMT
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In article <36AC8341.EC8@rosa.mpin-koeln.mpg.de>,
Alex Schuster <alex@rosa.mpin-koeln.mpg.de> wrote:
> wrb1000@my-dejanews.com wrote:
>
>> This is veering offtopic, but I'd just like to add my two cents.
>> IDL, like C, has many constructs that may add placed on a line to
>> condense the actual length of the program. However, just like C, the
>> readablity and understanding factors tend to drop. I intend to use the
>> a=(b=(c=1)) example. I always wondered how to initialize multiple variables
>> on the same IDL line.
>
> Now that's an easy one:
>
> IDL> a=1 & b=2 & c=3 & d=4 &
>
> Voila, one line :-)
>
> Alex

Oh, I knew that one, Alex. Anyone know which method offers faster execution -

a = 0 & b = 0 * OR * a = (b = 0)

this is important when applying the same principle to large arrays. At least
to those of us with slower PCs :(

Thanks,

Bill B.

Subject: Re: Undocumented array indexing feature?
Posted by Alex Schuster on Mon, 25 Jan 1999 08:00:00 GMT

wrb1000@my-dejanews.com wrote:

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Voila, one line :-)

Alex
--
Alex Schuster Wonko@weird.cologne.de PGP Key available
alex@pet.mpin-koeln.mpg.de

Subject: Re: Undocumented array indexing feature?
Posted by Mark Buckley on Mon, 25 Jan 1999 08:00:00 GMT

J.D. Smith wrote in message <36A8B556.DE735D13@astrosun.tn.cornell.edu>...
> It doesn't work for everything though... as evidenced by:
>
> z=5+6*(y=8)

Even better, I just realised that you can do:

y = 5 + y * ((y=8))

and get y to end up equal to 69!

Bah! Who needs temporary()!!

Mark.

Mark Buckley
Rutherford-Appleton Laboratory
Chilton
Didcot

OXON
UK

Subject: Re: Undocumented array indexing feature?
Posted by wrb1000 on Mon, 25 Jan 1999 08:00:00 GMT
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In article <Pine.SO4.4.03.9901221328390.15597-100000@virgil.gsfc.nasa.gov>,
"Robert S. Hill" <bhill@virgil.gsfc.nasa.gov> wrote:
> On Fri, 22 Jan 1999, J.D. Smith wrote:
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Thanks,

Bill B.

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Posted by Mark Buckley on Mon, 25 Jan 1999 08:00:00 GMT
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J.D. Smith wrote in message <36A8B556.DE735D13@astrosun.tn.cornell.edu>...
>
> It doesn't work for everything though... as evidenced by:
>
> z=5+6*(y=8)

No, but:

z = 5+6*((y=8))

does!

cheers,

Mark.

Mark Buckley
Rutherford-Appleton Laboratory
Chilton
Didcot
OXON
UK.
