Subject: Re: Arrays of Structures
Posted by Michael Galloy on Thu, 08 Feb 2007 20:21:16 GMT
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On Feb 8, 12:09 pm, "R.G. Stockwell" <n...@email.please> wrote:
> "Mick Brooks" <mick.bro...@gmail.com> wrote in message
>
> news:1170957886.387622.208430@l53g2000cwa.googlegroups.com.. .
> ...
>
>> ... but this is where you lose me. Doesn't the the first line that you
>> showed say that structs.a is an array of 50 ints?
>
> Not exactly. The key point is that structs.a is an EXPRESSION.
> Also, "struct" is an array of structures.
>
> You cannot do
> IDL> EXPRESSION(10)
> , you must first cast the expression
> IDL> (EXPRESSION)[10]
>
> It is not an operator precedence thing.
>
> Cheers,
> bob

I'm not sure that is an expression thing either. When I try to index
an expression, I get a syntax error:

```
IDL> print, findgen(10)[5]

print, findgen(10)[5]
                  ^
% Syntax error.
```

which can be fixed by using parenthesis:

```
IDL> print, (findgen(10))[5]
      5.00000
```

But Mick's error is giving the "out of bounds index" error. Using
parenthesis is not fixing a syntax error -- it's indexing something
else.

More poking around with a slight variation of Brian's weird example:

```
IDL> dat2 = replicate({a:findgen(25)}, 50)
IDL> help, dat2
```

```
DAT2            STRUCT    = -> <Anonymous> Array[50]
IDL> help, dat2, /structures
** Structure <2614a44>, 1 tags, length=100, data length=100, refs=1:
   A              FLOAT     Array[25]
IDL> help, dat2.a
<Expression>    FLOAT     = Array[25, 50]
```

OK, now try the unholy notation:

```
IDL> help, dat2.a[24]
<Expression>    FLOAT     = Array[50]
IDL> print, dat2.a[24]
      24.0000      24.0000 ... (50 times)
IDL> help, dat2.a[25]
% Subscript range values of the form low:high must be >= 0, < size,
with low <= high: <No name>.
% Execution halted at: $MAIN$
```

I think that the only way to interpret this is that the structure dat2
is being dereferenced by a[24] (although I agree it seems inconsistent
with the precedence rules). Check out the example of:

```
CONTOUR, cat[5:50].inten[2:8]
```

in the online help:

http://idlastro.gsfc.nasa.gov/idl_html_help/
Arrays_of_Structures.html

Also,

On Feb 8, 10:03 am, "Mick Brooks" <mick.bro...@gmail.com> wrote:

```
>  IDL> indices = [1, 3, 27]
>  IDL> HELP, structs.a[indices]
>  <Expression>    INT       = Array[3, 50]
```

> Where did that extra dimension come from?

Using the logic from above, I think the same place as:

```
IDL> k = 1
IDL> print, k[0]
       1
IDL> print, k[1]
% Attempt to subscript K with <INT       (       1)> is out of range.
% Execution halted at: $MAIN$
IDL> print, k[[1]]
       1
```

```
IDL> print, k[[1, 2, 3]]
      1       1       1
IDL> help, k[[1, 2, 3]]
<Expression>    INT       = Array[3]
```

Mike
--
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