Subject: Re: Odd behaviour in array indexing? Posted by David Fanning on Fri, 21 Feb 2003 15:40:26 GMT View Forum Message <> Reply to Message

mwvogel (mvogel@rdiag.fgg.eur.nl) writes:

```
> Today I realized something is amiss in IDL
> When I do
> index = [1,0,2,3,1,2,3,4]
> m = FLTARR(8)
> d = FINDGEN(8)
> m[index] = d
> print, m
```

1.00000 4.00000 5.00000 6.00000 7.00000

> 0.000000 0.000000 0.000000

- > Now I would have assumed that IDL would automatically *add* the numbers with
- > identical indices. Not doing
- > so is a potential performance penaly, right? Or am I mistaken....

I find it hard to say what exactly you are trying to do here, but IDL seems to be working exactly as I would expect it to. Variables on the left hand side of the expression are having things assigned to them. I'm not sure why you think the assignments should *add*. If I do this:

```
a = intarr(2)
a[1] = 5
```

And later,

$$a[1] = 6$$

I sure don't want a[1] to equal 11. That is exactly what you seem to be asking for above.

Cheers.

David

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Coyote's Guide to IDL Programming: http://www.dfanning.com/

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Odd behaviour in array indexing? Posted by James Kuyper on Fri, 21 Feb 2003 15:48:47 GMT

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```
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> d = FINDGEN(8)
> m[index] = d
> print, m
      1.00000
                  4.00000
                              5.00000
                                          6.00000
                                                       7.00000
> 0.000000
               0.000000
                           0.000000
>
> Now I would have assumed that IDL would automatically *add* the numbers with
> identical indices. ...
I'm not sure why you would assume that.
> ... Not doing
> so is a potential performance penaly, right?
Actually, doing it would incur a performance penalty. The way it's
actually implemented internally is equivalent to the following:
for i=0,7 do m[index[i]] = d[i]
except, of course, that it's far faster as "m[index] = d" than as an
explicit loop. That's a pretty efficient loop. I can't see anyway to
implement the behavior you want, that isn't a whole lot slower. The
closest I can get is equivalent to:
initialized = intarr(8)
FOR i=0,7 DO BEGIN
   IF initialized[index[i]] THEN m[index[i]] = d[i];
   ELSE m[index[i]] = m[index[i]] + d[i]:
```

Subject: Re: Odd behaviour in array indexing? Posted by tam on Fri, 21 Feb 2003 15:53:10 GMT

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David Fanning wrote:

initialized[index[i]] = 1;

ENDIF

```
> mwvogel (mvogel@rdiag.fgg.eur.nl) writes:
>
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>> When I do
>> index = [1,0,2,3,1,2,3,4]
>> m = FLTARR(8)
>> d = FINDGEN(8)
>> m[index] = d
>> print, m
>>
       1.00000
                   4.00000
                              5.00000
                                           6.00000
                                                       7.00000
>> 0.000000
               0.000000
                            0.000000
>>
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> sure why you think the assignments should *add*. If I do
> this:
>
    a = intarr(2)
>
    a[1] = 5
>
 And later,
>
>
    a[1] = 6
>
>
 I sure don't want a[1] to equal 11. That is exactly
  what you seem to be asking for above.
>
 Cheers,
> David
Just to amplify a little. Even if you had written this as
  m[index] = m[index] + d
where you might have a more realistic hope that
the m's would accumulate values, it wouldn't work.
It's best to think of IDL array operations as fully parallelized
operations, where there is a separate little CPU handling
the operation for each index. If you need dependencies
on prior iterations, then you need to do things in some different
```

fashion.

Beware, I think you are about to enter the 'Histogram Zone'. Dee da dee da

Regards, Tom McGlynn

Subject: Re: Odd behaviour in array indexing?
Posted by Liam E. Gumley on Fri, 21 Feb 2003 17:29:02 GMT

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- "mwvogel" <mvogel@rdiag.fgg.eur.nl> wrote in message news:b35fla\$q50\$2@mrelay2.eur.nl...
- > Today I realized something is amiss in IDL
- > When I do
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- > m = FLTARR(8)
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>

- > Now I would have assumed that IDL would automatically *add* the numbers with
- > identical indices. Not doing so is a potential performance penaly, right? Or am I mistaken....

This subject is discussed in the "Vectorization question" thread associated with my name at Google Groups:

http://groups.google.com/groups?group=comp.lang.idl-pvwave

Cheers, Liam Gumley. Practical IDL Programming http://www.gumley.com/