## Subject: Re: Replicate array over columns - using transpose? Posted by Lajos Foldy on Thu, 22 Mar 2012 10:50:39 GMT View Forum Message <> Reply to Message

```
On Mar 22, 11:11 am, Robin Wilson <ro...@rtwilson.com> wrote:
> Hi all,
>
  I've got an array, a, as follows:
>
>
 IDL> print, a
>
       10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
>
  I want to replicate this across 4 columns to produce an array like the
  following:
>
>
                     10
>
  10
        10
              10
> 35
        35
              35
                     35
> 60
        60
              60
                     60
> 85
        85
              85
                     85
  110
         110
               110
                      110
>
  I'm using the CMREPLICATE routine to do this, and get the following:
>
>
  IDL> print, CMREPLICATE(a, 4)
                              60.0000
>
      10.0000
                  35.0000
                                         85.0000
                                                     110.000
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
>
> However, I want to replicate it in the columns as in the example above.
 As far as I can see it there are two ways to deal with this: transpose
> the array after I've done it (computationally expensive, as I'll be
> doing it with far larger arrays in the real program) or transpose it
> before running CMREPLICATE. However, if I do this I get an extra
> dimension added:
>
 IDL> help, CMREPLICATE(transpose(a), 4)
> <Expression> FLOAT
                            = Array[1, 5, 4]
>
  Is there a way to replicate over the columns without adding this extra
>
 dimension? I'm sure I'm missing something simple here.
>
> Cheers.
> Robin
b=rebin(reform(a,1,5), 5,5)
```

Subject: Re: Replicate array over columns - using transpose? Posted by dplatten on Thu, 22 Mar 2012 10:57:56 GMT

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Hi Robin,

You can use a combination of REBIN and TRANSPOSE to do this. The following should work for you:

```
nElements = 5

nCols = 4

test = INDGEN(nElements)

print, test

0 1 2 3 4
```

print, REBIN(TRANSPOSE(test), nCols, nElements)

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4

Regards,

David

Subject: Re: Replicate array over columns - using transpose? Posted by Heinz Stege on Thu, 22 Mar 2012 11:25:52 GMT

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Hi Robin,

I don't know CMREPLICATE. Does the following work?

help,transpose(cmreplicate(a,4))

Another question: What is the advantage of using CMREPLICATE instead of the built-in REBIN function?

help,transpose(rebin(a,n\_elements(a),4,/sample))

```
Subject: Re: Replicate array over columns - using transpose?
Posted by Heinz Stege on Thu, 22 Mar 2012 11:42:33 GMT
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```

On Thu, 22 Mar 2012 12:25:52 +0100, Heinz Stege wrote:

> help,transpose(rebin(a,n\_elements(a),4,/sample))

Don't use the above. Lajos' solution without the TRANSPOSE operation is much more efficient:

On Thu, 22 Mar 2012 03:50:39 -0700 (PDT), Lajos Foldy wrote:

> b=rebin(reform(a,1,5), 5,5)

Heinz

Subject: Re: Replicate array over columns - using transpose? Posted by Craig Markwardt on Thu, 22 Mar 2012 12:01:30 GMT View Forum Message <> Reply to Message

```
On Thursday, March 22, 2012 6:11:54 AM UTC-4, robintw wrote:
```

```
> Hi all,
```

>

I've got an array, a, as follows:

> IDL> print, a

>

10.0000 35.0000 60.0000 85.0000

110.000

I want to replicate this across 4 columns to produce an array like the

following:

> 10 10 10 10

> 35 35 35 35

> 60 60 60 60

> 85 85 85 85

110 110 110 110

I'm using the CMREPLICATE routine to do this, and get the following:

>

> IDL> print, CMREPLICATE(a, 4)

10.0000 35.0000 60.0000 85.0000 110,000 10.0000 35.0000 60.0000 85.0000 110.000

```
> 10.0000 35.0000 60.0000 85.0000 110.000
> 10.0000 35.0000 60.0000 85.0000 110.000
```

>

- > However, I want to replicate it in the columns as in the example above.
- > As far as I can see it there are two ways to deal with this: transpose
- > the array after I've done it (computationally expensive, as I'll be
- > doing it with far larger arrays in the real program) or transpose it
- > before running CMREPLICATE. However, if I do this I get an extra
- > dimension added:

>

- > IDL> help, CMREPLICATE(transpose(a), 4)
- > <Expression> FLOAT = Array[1, 5, 4]

>

- > Is there a way to replicate over the columns without adding this extra
- > dimension? I'm sure I'm missing something simple here.

I'm the CM in CMreplicate, but I wouldn't use CMreplicate. I use this instead.

Usually I'm matching up X and Y labels to a 2D grid, so I do this,

$$XX = (X*0 + 1) # Y$$
  
 $YY = X # (Y*0 + 1)$ 

Now XX and YY are 2D arrays with X running along one axis and Y running along the other axis. It looks crazy, but it works.

Craig

Subject: Re: Replicate array over columns - using transpose? Posted by Russell[1] on Thu, 22 Mar 2012 15:17:35 GMT

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It's way easier than that.

Suppose, a=[10,35,60,85,110.]

and you want it to have n entries, then all you need is

b=(1+bytarr(n))#a

voila!

```
On Mar 22, 6:11 am, Robin Wilson <ro...@rtwilson.com> wrote:
 Hi all,
>
>
  I've got an array, a, as follows:
>
 IDL> print, a
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
>
 I want to replicate this across 4 columns to produce an array like the
  following:
>
>
  10
        10
              10
                    10
> 35
        35
              35
                    35
> 60
        60
              60
                    60
> 85
        85
              85
                    85
  110
         110
                110
                      110
>
  I'm using the CMREPLICATE routine to do this, and get the following:
>
  IDL> print, CMREPLICATE(a, 4)
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
                  35.0000
                              60.0000
>
      10.0000
                                         85.0000
                                                     110.000
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
      10.0000
                  35.0000
                              60.0000
                                         85.0000
                                                     110.000
>
> However, I want to replicate it in the columns as in the example above.
> As far as I can see it there are two ways to deal with this: transpose
> the array after I've done it (computationally expensive, as I'll be
> doing it with far larger arrays in the real program) or transpose it
> before running CMREPLICATE. However, if I do this I get an extra
 dimension added:
>
> IDL> help, CMREPLICATE(transpose(a), 4)
  <Expression> FLOAT
                            = Array[1, 5, 4]
>
> Is there a way to replicate over the columns without adding this extra
  dimension? I'm sure I'm missing something simple here.
>
 Cheers,
> Robin
```

Subject: Re: Replicate array over columns - using transpose?

```
On Mar 22, 8:01 am, Craig Markwardt < craig.markwa...@gmail.com> wrote:
> On Thursday, March 22, 2012 6:11:54 AM UTC-4, robintw wrote:
>> Hi all.
>
>> I've got an array, a, as follows:
>> IDL> print, a
        10.0000
                   35.0000
                               60.0000
                                           85.0000
                                                      110.000
>>
>> I want to replicate this across 4 columns to produce an array like the
>> following:
>> 10 10
            10
                   10
>> 35 35
            35
                   35
>> 60 60
                   60
            60
>> 85 85
            85
                   85
>> 110
            110
                   110
                         110
>> I'm using the CMREPLICATE routine to do this, and get the following:
>
>> IDL> print, CMREPLICATE(a, 4)
        10.0000
                   35.0000
                               60.0000
                                           85.0000
                                                      110.000
>>
        10.0000
                   35.0000
                               60.0000
                                           85.0000
                                                      110.000
>>
        10.0000
                   35.0000
                               60.0000
                                           85.0000
                                                      110.000
>>
        10.0000
                   35.0000
                                           85.0000
                               60.0000
                                                      110.000
>>
>> However, I want to replicate it in the columns as in the example above.
>> As far as I can see it there are two ways to deal with this: transpose
>> the array after I've done it (computationally expensive, as I'll be
>> doing it with far larger arrays in the real program) or transpose it
>> before running CMREPLICATE. However, if I do this I get an extra
>> dimension added:
>> IDL> help, CMREPLICATE(transpose(a), 4)
>> <Expression>
                   FLOAT
                             = Array[1, 5, 4]
>
>> Is there a way to replicate over the columns without adding this extra
  dimension? I'm sure I'm missing something simple here.
 I'm the CM in CMreplicate, but I wouldn't use CMreplicate. I use this instead.
>
  print, [1,1,1,1,1] # a
>
  Usually I'm matching up X and Y labels to a 2D grid, so I do this,
>
   XX = (X*0 + 1) # Y
```

```
YY = X \# (Y*0 + 1)
```

> Now XX and YY are 2D arrays with X running along one axis and Y running along the other axis. It looks crazy, but it works.

> Craig

Ha! I should have read on. I didn't see someone posted this answer.

Sorry for the repetition, Russell

Subject: Re: Replicate array over columns - using transpose? Posted by Yngvar Larsen on Fri, 23 Mar 2012 12:06:14 GMT View Forum Message <> Reply to Message

I don't think this variant is covered yet:

```
a = reform(float([10,35,60,85,110]), 1, 5, /overwrite)
print, rebin(a, 4, 5)
```

Yngvar