Subject: Re: findgen([variable])
Posted by Craig Markwardt on Tue, 12 Dec 2000 17:28:32 GMT
View Forum Message <> Reply to Message

Martin Skou Andersen <skou@fys.ku.dk> writes:
> Is it posible to make an mutiple dimensional array by using a variable
> such as findgen(x)?

This is virtually impossible, right? You are asking for each row of
the resulting array to be of a different length. That's not really a
2 dimensional array is it?

Craig

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

Subject: Re: findgen([variable])
Posted by Pavel A. Romashkin on Tue, 12 Dec 2000 17:45:53 GMT
View Forum Message <> Reply to Message

I am afraid FINDGEN can not take a vector for dimensions. What I would
try is either using a vector

```
x = [5, 7]
r = findgen(total(x))
```

which still would allow transparent indexing of R. If I really needed
multi D arrays, I'd use EXECUTE and build a command string using
dimensions of X:

```
x = [5, 7]
com = 'r = findgen('
for i =0, n_elements(x)-1 do com = com +'x['+string(i)+']'+ $
string(44b*byte(i ne n_elements(x)-1) > 41b)
i=execute(com)
```

EXECUTE is not cute, but I can't come up with anything nicer. I need
another cup of coffe :-(

Cheers,
Pavel

Martin Skou Andersen wrote:

>
> Hi...
> I was wondering if I could use findgen with a variable.
> If I in one situation would use a one dimension array and in another
> situation a mutiple dimension array how would i do?
> I have tried with findgen(x), where x could be an integer or an array.
> But when x is an array IDL gives me following error message:
> IDL> r=fltarr(x)+10
> % FLTARR: Expression must be a scalar in this context: X.
> % Execution halted at: $MAIN$
>
> where x is:
> IDL> print,x
>   5   7
> IDL> help,x
> X   INT   = Array[2]
> Is it posible to make an mutiple dimensional array by using a variable
> such as findgen(x)?
> --
> Thanx in advance
> Martin Skou Andersen
> E-mail: Skou@fys.ku.dk
>   Martin_Skou@mail.tele.dk
> Homepage: http://www.fys.ku.dk/~skou/

Subject: Re: findgen([variable])
Posted by Pavel A. Romashkin on Tue, 12 Dec 2000 17:53:37 GMT
View Forum Message <> Reply to Message

Oh Craig, I expected an answer involving HISTOGRAM from you :-(

Cheers,
Pavel

Craig Markwardt wrote:
>
> Martin Skou Andersen <skou@fys.ku.dk> writes:
>> Is it posible to make an mutiple dimensional array by using a variable
>> such as findgen(x)?
>
> This is virtually impossible, right? You are asking for each row of
> the resulting array to be of a different length. That's not really a
> 2 dimensional array is it?
>
> Craig

Subject: Re: findgen([variable])
Posted by John-David T. Smith on Tue, 12 Dec 2000 18:20:45 GMT
View Forum Message <> Reply to Message

Craig Markwardt wrote:
>
> Martin Skou Andersen <skou@fys.ku.dk> writes:
>> Is it posible to make an mutiple dimensional array by using a variable
>> such as findgen(x)?
>
> This is virtually impossible, right? You are asking for each row of
> the resulting array to be of a different length. That's not really a
> 2 dimensional array is it?

Are we sure he doesn't just mean:

findgen(x[0],x[1]) ?

JD

Subject: Re: findgen([variable])
Posted by Paul van Delst on Tue, 12 Dec 2000 18:33:52 GMT
View Forum Message <> Reply to Message

"Pavel A. Romashkin" wrote:
>
> I am afraid FINDGEN can not take a vector for dimensions. What I would
> try is either using a vector
>
> x = [5, 7]
> r = findgen(total(x))
>
> which still would allow transparent indexing of R. If I really needed
> multi D arrays, I'd use EXECUTE and build a command string using
> dimensions of X:
>
> x = [5, 7]
> com = 'r = findgen('
> for i =0, n_elements(x)-1 do com = com +'x['+string(i)+']'+ $
> string(44b*byte(i ne n_elements(x)-1) > 41b)
> i=execute(com)
>
> EXECUTE is not cute, but I can't come up with anything nicer. I need
> another cup of coffe :-(

Oof!

What about

```
IDL> x=[5,7]
IDL> ndim=n_elements(x)
IDL> n=1L
IDL> for i=0,ndim-1 do n=n*x[i]
IDL> help, reform(findgen(n),x)
<Expression>    FLOAT     = Array[5, 7]
IDL> print, reform(findgen(n),x)
      0.00000      1.00000      2.00000      3.00000      4.00000
      5.00000      6.00000      7.00000      8.00000      9.00000
      10.0000      11.0000      12.0000      13.0000      14.0000
      15.0000      16.0000      17.0000      18.0000      19.0000
      20.0000      21.0000      22.0000      23.0000      24.0000
      25.0000      26.0000      27.0000      28.0000      29.0000
      30.0000      31.0000      32.0000      33.0000      34.0000
```

Seems that determining "n" is the hard part...is there a "PRODUCT" type of function in IDL? Like TOTAL but with * rather than + as the operator.

Why doesn't MAKE_ARRAY allow for a dimension vector input?

paulv

--
Paul van Delst Ph: (301) 763-8000 x7274
CIMSS @ NOAA/NCEP Fax: (301) 763-8545
Rm.207, 5200 Auth Rd. Email: pvandelst@ncep.noaa.gov
Camp Springs MD 20746

Subject: Re: findgen([variable])
Posted by Craig Markwardt on Tue, 12 Dec 2000 18:52:35 GMT
View Forum Message <> Reply to Message

JD Smith <jdsmith@astro.cornell.edu> writes:

> Craig Markwardt wrote:
>>
>> Martin Skou Andersen <skou@fys.ku.dk> writes:
>>> Is it posible to make an mutiple dimensional array by using a variable
>>> such as findgen(x)?
>>
>> This is virtually impossible, right? You are asking for each row of
>> the resulting array to be of a different length. That's not really a
>> 2 dimensional array is it?
>

>
> Are we sure he doesn't just mean:
>
> findgen(x[0],x[1]) ?

Ah yes, that would be a good idea. In fact, one of my "top ten" requests was to have all of the functions that accept dimensions, accept them in a consistent way. REBIN, REFORM and TOTAL are all different. We should be able to specify dimensions consistently between them, and either as an array, or a list of scalars.

Here is my entry. Sorry, no HISTOGRAM call, but I need to give it a rest once in a while.

```
nel = dims(0)
for i = 1L, n_elements(dims)-1 do nel = nel * dims(i)
arr = reform(findgen(nel), dims)
```

Craig

--

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

---

Subject: Re: findgen([variable])
Posted by Craig Markwardt on Tue, 12 Dec 2000 19:07:52 GMT
View Forum Message <> Reply to Message

Paul van Delst <pvandelst@ncep.noaa.gov> writes:
> Oof!

Looks like we posted at the same time. Oof indeed. :-)

> Seems that determining "n" is the hard part...is there a "PRODUCT" type of function in IDL? Like
> TOTAL but with * rather than + as the operator.

There is PRODUCT in the IDL Astronomy Library, and CMPRODUCT from my web page, which I purport to be faster in most cases. Alas, there is no built-in IDL support, but there should be. Make that my "top eleventh" request.

> Why doesn't MAKE_ARRAY allow for a dimension vector input?

It does, ever try the DIMENSION keyword, sonny? :-)

Craig

http://cow.physics.wisc.edu/~craigm/idl/idl.html

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

Subject: Re: findgen([variable])
Posted by Paul van Delst on Tue, 12 Dec 2000 19:24:18 GMT
View Forum Message <> Reply to Message

Craig Markwardt wrote:
>
> Paul van Delst <pvandelst@ncep.noaa.gov> writes:
>> Oof!
>
> Looks like we posted at the same time. Oof indeed. :-)
>
>> Why doesn't MAKE_ARRAY allow for a dimension vector input?
>
> It does, ever try the DIMENSION keyword, sonny? :-)

Oh yeah.... I still haven't received your post on my server (you're at GSFC, right, so that's probably why...last on the list of NOAA server updates :o) so this is probably the same as you put together:

```
IDL> x=[5,7]
IDL> help, make_array(dimension=x,/index)
<Expression>    FLOAT     = Array[5, 7]
IDL> print, make_array(dimension=x,/index)
      0.00000      1.00000      2.00000      3.00000      4.00000
      5.00000      6.00000      7.00000      8.00000      9.00000
      10.0000      11.0000      12.0000      13.0000      14.0000
      15.0000      16.0000      17.0000      18.0000      19.0000
      20.0000      21.0000      22.0000      23.0000      24.0000
      25.0000      26.0000      27.0000      28.0000      29.0000
      30.0000      31.0000      32.0000      33.0000      34.0000
```

Veddy nice

No need for any "PRODUCT"-ing

cool

paulv

--
Paul van Delst Ph: (301) 763-8000 x7274
CIMSS @ NOAA/NCEP Fax: (301) 763-8545
Rm.207, 5200 Auth Rd. Email: pvandelst@ncep.noaa.gov
Camp Springs MD 20746

Subject: Re: findgen([variable])
Posted by John-David T. Smith on Tue, 12 Dec 2000 19:33:36 GMT
View Forum Message <> Reply to Message

Craig Markwardt wrote:
>
> JD Smith <jdsmith@astro.cornell.edu> writes:
>
>> Craig Markwardt wrote:
>>>
>>> Martin Skou Andersen <skou@fys.ku.dk> writes:
>>>> Is it posible to make an mutiple dimensional array by using a variable
>>>> such as findgen(x)?
>>>
>>> This is virtually impossible, right? You are asking for each row of
>>> the resulting array to be of a different length. That's not really a
>>> 2 dimensional array is it?
>>
>>
>> Are we sure he doesn't just mean:
>>
>> findgen(x[0],x[1]) ?
>
> Ah yes, that would be a good idea. In fact, one of my "top ten"
> requests was to have all of the functions that accept dimensions,
> accept them in a consistent way. REBIN, REFORM and TOTAL are all
> different. We should be able to specify dimensions consistently
> between them, and either as an array, or a list of scalars.

Or as either, as in Perl, where

@a=($a1,$a2);
sub(@a);

sub($a1,$a2)

are the same. A list is a list is a list. This simplifies a lot of
things (and of course requires atomic list members (i.e. pointers),

since you can't have separate lists and scalars all on the command
line).

Not that we could ever get away with that kind of facelift, but PerlDL
of course has hope.

JD

Subject: Re: findgen([variable])
Posted by Pavel A. Romashkin on Tue, 12 Dec 2000 19:50:56 GMT
View Forum Message <> Reply to Message

Not only was my suggestion "Oof", but it was downright wrong, too, I am
afraid :-(Perfect mental state to get ready for that conference, Pavel.
But, if I didn't post this ugly one, how else would this thread stir up
so much nice input from the better ones? You guys were dormant there for
a couple of hours!

Cheers,
Pavel

Paul van Delst wrote:

> Oof!
> ..... snip
> paulv
