
Subject: About INTERPOLATE function.

Posted by [Dae-Kyu Shin](#) on Thu, 30 Jul 2015 01:21:01 GMT

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Example 1.

```
a = findgen(4)
a[1] = !values.f_nan
print, a
      0.000000      NaN      2.00000      3.00000

print, interpolate(a, [0, 1, 2, 3])
      NaN      NaN      2.00000      3.00000
```

Example 2.

```
a = transpose(a)
print, interpolate(a, 0, [0, 1, 2, 3], /grid)
      0.000000
      NaN
      2.00000
      3.00000
```

different result~!!

is this right output?

Subject: Re: About INTERPOLATE function.

Posted by [wlandsman](#) on Thu, 30 Jul 2015 03:55:37 GMT

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I think this a case of the location values being interpreted as floating point, and you are on a knife-edge when next to an NaN value

```
if a = [0,!values.f_nan,2,3]
```

then one expects `interpolate(a,0) = 0` and `interpolate(a,2) = 2`

because the zeroth element has value of 0 and the second element has a value of 2.

But one also expects `interpolate(a,0.000000000001)=NaN`
and `interpolate(a,1.999999999999)=NaN`

because any type of interpolation/calculation involving an NaN value -- no matter how tiny -- should give NaN as an answer. If the location values are interpreted as floating point then inputting a 0 could mean a value very slightly smaller or larger. Thus IDL gives

```
IDL> print,interpolate(a,0),interpolate(a,2)
      NaN      2.00000
```

though evidently with the /grid keyword the rounding works differently

My advice is -- don't use INTERPOLATE() when you have NaN values.

On Wednesday, July 29, 2015 at 9:21:04 PM UTC-4, Dae-Kyu Shin wrote:

```
> Example 1.  
>  
> a = findgen(4)  
> a[1] = !values.f_nan  
> print, a  
>    0.000000      NaN    2.00000    3.00000  
>  
> print, interpolate(a, [0, 1, 2, 3])  
>      NaN      NaN    2.00000    3.00000  
>  
> Example 2.  
> a = transpose(a)  
> print, interpolate(a, 0, [0, 1, 2, 3], /grid)  
>    0.000000  
>      NaN  
>    2.00000  
>    3.00000  
>  
> different result~!!  
> is this right output?
```
