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Subject: Re: what is the dist function's mean?

Posted by [Dick Jackson](#) on Fri, 22 Apr 2005 19:36:00 GMT

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You know, I never quite understood that explanation from the manual either (does it really make sense to anyone?), so I think of it this way:

In the array resulting from `Dist()`, each element is the straight-line "distance" from either element `[0, 0]` or the element just \*beyond\* each other corner, whichever is closest.

In these examples I add "\*\*\*\*\*" for the other hypothetical corner elements:

```
IDL> print,dist(4)
0.000000  1.00000  2.00000  1.00000  *****
1.00000  1.41421  2.23607  1.41421
2.00000  2.23607  2.82843  2.23607
1.00000  1.41421  2.23607  1.41421
*****                                *****

IDL> print,dist(5)
0.000000  1.00000  2.00000  2.00000  1.00000  *****
1.00000  1.41421  2.23607  2.23607  1.41421
2.00000  2.23607  2.82843  2.82843  2.23607
2.00000  2.23607  2.82843  2.82843  2.23607
1.00000  1.41421  2.23607  2.23607  1.41421
*****                                *****
```

What's nice is that you can roll the rows and columns around and get a nice array with distances from the centre point:

```
IDL> print,Shift(dist(5),2,2)
2.82843  2.23607  2.00000  2.23607  2.82843
2.23607  1.41421  1.00000  1.41421  2.23607
2.00000  1.00000  0.00000  1.00000  2.00000
2.23607  1.41421  1.00000  1.41421  2.23607
2.82843  2.23607  2.00000  2.23607  2.82843
```

Peace,

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-Dick

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"Haje Korth" <[haje.korth@jhuapl.edu](mailto:haje.korth@jhuapl.edu)> wrote in message  
[news:d4bgld\\$il0\\$1@aplcore.jhuapl.edu](mailto:news:d4bgld$il0$1@aplcore.jhuapl.edu)...

> Maybe we should start copying from the manual. So here we go:  
>  
> The DIST function creates an array in which each array element value is  
> proportional to its frequency. This array may be used for a variety of  
> purposes, including frequency-domain filtering.  
>  
> This routine is written in the IDL language. Its source code can be found  
> in the file dist.pro in the lib subdirectory of the IDL distribution.  
>  
> (I would post the code too, but it is copyrighted, so you will have to  
> look at RS\IDLxx\lib\dist.pro yourself. Sorry for the inconvenience)  
>  
> H.  
>  
>  
> "lixiaoyao" <lixiaoyao5880@yahoo.com> wrote in message  
> news:1114191092.478578.9120@g14g2000cwa.googlegroups.com...  
>> Is there anybody who can explain the dist for me?  
>> I know dist(100) generate a 100X100 matrix,but what is the value for  
>> it  
>> come from? In the help file,they said it is the frequency,but I do not  
>> understand.  
>> also,what is the purpose for this function?  
>> Thanks a lot  
>>  
>  
>

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