
Subject: Newbie's question

Posted by ChiChiRuiz@gmail.com on Wed, 19 Oct 2005 22:06:53 GMT

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Hi there,

I have a scatter plot which has the shape of a parabola, like $y=x^2$. I want to find the best curve fit to the scatter plot, so I used the function "curvefit" with no weights and with initial guesses (1.0, 2.0) i.e. $y = 1.*x^{(2.)}$. So, here's the problem...when I use only the right half of the data points (i.e. x and y values are positive), I get the curvefit returns parameter (0.5, 1.5), which means, the best fit curve is $y=.5*x^{(1.75)}$. I know the fit should be symmetric, so the same curve SHOULD fit the other half. Now onto the left half side of the data set, curvefit does not work anymore, and here's why, $x^{(1.5)}=x^{(3/2)}$ and when x is a negative number, IDL returns "NaN" because it can't take the square root of a negative number, hence the entire procedure will not work. I ended up having to throw away half of my data points, and I'm not very comfortable with that. Any idea how to go around it or suggest another function to do the same thing?

Besides, I've thought about using "polyfit", but if I remember correctly, polyfit only takes in one x value vs. one y value. Scatter plot has one x value vs. several y values. I don't think it'll work in my case, but I may be wrong...

TIA (thanks in advance)

Angie

Subject: Re: Newbie's question

Posted by [JD Smith](#) on Fri, 21 Oct 2005 16:35:19 GMT

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On Fri, 21 Oct 2005 05:55:53 -0700, James Kuyper wrote:

>> Fitting to a single power law is a time honored tradition in many of the
>> precision-limited fields of physics (e.g. astronomy).
>
> True, but following that tradition is only appropriate when there's a
> specific reason to expect a power law of some kind.

You'd be surprised how many different motivations are invoked in the cult of log-log.

JD

Subject: Re: Newbie's question
Posted by [James Kuyper](#) on Fri, 21 Oct 2005 17:19:27 GMT
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ChiChiRuiz@gmail.com wrote:

> I agreed that it's more a scientific problem, rather than a numerical
> one. It'd just never crossed my mind that it would be this
> complicated. The x, y arrays are values from different images over the
> same pixel location, because of the stats analysis to produce these
> values, they "SHOULD" have a $y=x^2$ relationship, but due to large
> analytical errors, I know it's not exactly $y=x^2$. I just want to get a
> general idea for the scatter plot.

I still think that it's likely that you're doing the wrong kind of analysis. However, I can't be sure, and I can't suggest an alternative, unless I know a little bit more about what these numbers actually mean.

When you say "images", I tend to think of something which, at the fundamental level, is incapable of having negative values. Background subtraction can produce negative values, and dealing with that in a fashion that doesn't bias your statistics is a tricky issue. However, I got the impression from your comments that the negative values were pretty common, and of a magnitude similar to that of your positive values.

It also would help if we knew what you were planning to do with this number once you've calculated it. The right number to calculate, and the best way to calculate it, often depends upon how you plan to use that number.

Subject: Re: Newbie's question
Posted by [James Kuyper](#) on Fri, 21 Oct 2005 17:29:07 GMT
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JD Smith wrote:

> On Fri, 21 Oct 2005 05:55:53 -0700, James Kuyper wrote:
>
>>> Fitting to a single power law is a time honored tradition in many of the
>>> precision-limited fields of physics (e.g. astronomy).
>>
>> True, but following that tradition is only appropriate when there's a
>> specific reason to expect a power law of some kind.
>
> You'd be surprised how many different motivations are invoked in the
> cult of log-log.

No I wouldn't. By training, I'm a theoretical cosmologist. I've seen a

lot of badly motivated log-log "analysis" by astronomers.

Subject: Re: Newbie's question

Posted by ChiChiRuiz@gmail.com on Fri, 21 Oct 2005 18:22:06 GMT

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Hi James,

The x values are air temperatures in comparison to the ground, ie. if the air is cooler than the ground (a shadow or shade), then the value is negative; if the air is hotter than the ground, it's a positive number. Over a strip of image, the value varies from negative to positive. So, I'm interested how, over a ROI, the temp changes over some location.

Angie

Subject: Re: Newbie's question

Posted by [James Kuyper](#) on Fri, 21 Oct 2005 22:06:45 GMT

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ChiChiRuiz@gmail.com wrote:

> Hi James,

>

> The x values are air temperatures in comparison to the ground, ie. if
> the air is cooler than the ground (a shadow or shade), then the value
> is negative; if the air is hotter than the ground, it's a positive
> number. Over a strip of image, the value varies from negative to
> positive. So, I'm interested how, over a ROI, the temp changes over
> some location.

OK, and now what are the y values, and why do you expect them to be the square of the x values?

Subject: Re: newbie's question

Posted by [David Fanning](#) on Sat, 14 Apr 2007 17:04:46 GMT

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geonline714@gmail.com writes:

> I tried to run a script like this (stored in test.pro):

>

> array = ['one', 'two', 'three']

> print, array

```

> n = N_ELEMENTS(array)
> print, n
> FOR i=0,n-1 DO BEGIN
>   PRINT, array[i]
> ENDFOR
>
>
> However, I got error message as follows:
>
> IDL> @test
> one two three
>     3
> Attempt to subscript ARRAY with I is out of range.
> Execution halted at: $MAIN$
>
> ENDFOR
> ^
> Syntax error.
> At: E:\temp\test.pro, Line 7
>
>
> This is an example from IDL. Do you have any idea about what is going
> on?

```

The @ sign attempts to read the instructions in the file as if you were typing them at the IDL command line. That is, one after the other. But, it is VERY difficult to write multiple line commands, such as in your FOR loop, at the IDL command line. You will need line continuation and line concatenation symbols to do so. **NO ONE WANTS TO DO THAT!**

So, what you want to do is compile this bunch of commands you have FIRST, then execute that. BUT, in order to make these command compilable, there has to be an END statement at the end of the commands, so the compiler knows where to stop. That is what is missing in your code (and is probably what you have left out of the example).

What you want to do with this code is add an END statement. Then compile the commands:

```
IDL> .compile test
```

Then run this main-level program:

```
IDL> .go
```

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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

Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: newbie's question

Posted by [geonline714](#) on Sat, 14 Apr 2007 18:08:16 GMT

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Dear David,

Thank you for your detailed explanation. Now it works. :)

Have a great weekend!

Sincerely,

Qi

On Apr 14, 10:04 am, David Fanning <n...@dfanning.com> wrote:

> geonline...@gmail.com writes:

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>> ENDFOR

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>> 3

>> Attempt to subscript ARRAY with I is out of range.

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> Cheers,
>
> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming:<http://www.dfanning.com/>
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
