Subject: Voigt function fit using MPFIT
Posted by Sreelakshmi S on Wed, 02 Oct 2013 11:12:55 GMT
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Hi,

I have a set of observed data of flux vs wavelength.I am trying MPFIT to fit a voigt function. I defined the function as

FUNCTION fit,p,X=x2,Y=nflux2

model=double((voigt(p[0],p[1])*1e-13)/(p[3]*sqrt(!pi)))
return,(Y-model)/err

END

But when I run this, the following errors are coming

FUNCTION fit,x2=X,nflux2=Y,p
                         ^
% Programs can't be compiled from single statement mode.

return,(Y-model)/1
 ^
% Syntax error.

Why is this happening?

Subject: Re: Voigt function fit using MPFIT
Posted by Helder Marchetto on Wed, 02 Oct 2013 12:47:00 GMT
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On Wednesday, October 2, 2013 1:12:55 PM UTC+2, Sreelakshmi S wrote:
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> return,(Y-model)/1
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> Why is this happening?

Well, there are a number of things wrong.
1) If you define the function with
FUNCTION Fit, Y=nFlux2
then you must use nFlux2 in your code, not Y.
Try making a function like this:
FUNCTION Fit, Y=nFlux2
PRINT, (N_ELEMENTS(Y) NE 0)?'Y Exist':'Y does not exist'
PRINT, (N_ELEMENTS(nFlux2) NE 0)?'nFlux2 Exist':'nFlux2 does not exist'
RETURN, ''
END
and look at the result of the following commands:
print, Fit(Y=5)
print, Fit(/Y)
print, Fit()

print, Fit(nFlux2=5)
This way you should learn something about passing variables.

2) How are you calling the function? I have the feeling that this is not happening from inside another program or from within IDL.

3) Are you sure there is no other function named fit? The first line of the function you wrote and the one showed are different.

4) In your Voigt function you use parameters p[0], p[1], p[3]. Is there a reason for skipping [2]?

5) The variable "err" is not defined in the function. This will for sure through an error. (well what should an err variable do anyway!)

6) Passing two scalar values to the function will return a scalar value. Is that what you want? I don't think so...

7) I think that the NASA library has some Voigt fit functions... did you look at those?

Regards,
Helder

Subject: Re: Voigt function fit using MPFIT
Posted by Sreelakshmi S on Tue, 08 Oct 2013 01:39:47 GMT
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On Wednesday, October 2, 2013 4:42:55 PM UTC+5:30, Sreelakshmi S wrote:
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> Why is this happening?

Hi,
Thank you for your inputs.
I have modified the function as

```
FUNCTION voigtfit,p,x,y,er

lambda1=1025.7230
gamma1=1.897e08
f1=2.638e-2

av1=double((gamma1*lambda1*1e-13)/(4*!pi*p[0]))
u1=(y/p[0])-(p[1]/p[0])
dop1=double(p[0]/lambda1)

phi1=double((voigt(av1,u1)*1e-13)/(dop1*sqrt(!pi)))
tau1=double(2.654e-02*p[2]*f1*phi1)
model1=double(exp(-tau1))
return,(y-model1)/er
END
```

and I am calling this function from IDL as below

fac={X:vel,Y:nflux2,ERR:dy}
result=double(mpfit('voigtfit',p,functargs=fac))

Now when I run this an error comes
% MPFIT: Error detected while calling voigtfit:
% MPFIT:Keyword parameter not allowed in call.
% MPFIT: Error condition detected. Returning to main level.

Which is the keyword here? What is this error?

Subject: Re: Voigt function fit using MPFIT
Posted by on Tue, 08 Oct 2013 18:14:23 GMT
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On 2013-10-08 03:39, Sreelakshmi S wrote:
> On Wednesday, October 2, 2013 4:42:55 PM UTC+5:30, Sreelakshmi S wrote:
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> Now when I run this an error comes
> % MPFIT: Error detected while calling voigtfit:
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> Which is the keyword here? What is this error?

There are instructions at the beginning of mpfit.pro. They say how the function voightfit (or myfunct, as it is called there) should be defined. It should have a single non-keyword parameter only, the parameter list P. All other parameters must be keyword parameters, corresponding to the parameter list in functargs.

So you need something like

FUNCTION voigtfit,p,x=x,y=y,er=er

The reason you get a "keyword parameter not allowed in call" is that mpfit tries to call voigtfit with the keyword parameters you specified by defining fac the way you did and giving it to mpfit through the functargs keyword.
