Subject: Re: plot of implicit function
Posted by Wout De Nolf on Fri, 19 Nov 2010 10:08:41 GMT
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On Fri, 19 Nov 2010 01:24:28 -0800 (PST), Andrea
<negri.andre@gmail.com> wrote:

> Hello, I have an analitical 3D streamfunction, and I want to plot it.
> I looked here http://www.dfanning.com/tips/particle_3d.html and it's
> exactly what I want,

Isn't a streamfunction like a vectorfield? Shouldn't you be using
something like this (but then in 3D):
http://michaelgalloy.com/2008/03/19/overview-of-flow-visuali zation-in-idl.html

> but I have an a implicit definition of
> coordinates:
> f(R,phi,z)=t
> g(R,phi,z)=t
> h(R,phi,z)=t

I don't understand. So you have coordinates (R,phi,z) which can be
easily transformed to (x,y,z). f,g and h aren't defining the
vectorfield are they? So what are they and how is your vectorfield
based upon them? Maybe I'm missing something obvious here...

Subject: Re: plot of implicit function
Posted by Andrea[1] on Fri, 19 Nov 2010 10:34:04 GMT
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On Nov 19, 11:08 am, Wox <s...@nomail.com> wrote:
> On Fri, 19 Nov 2010 01:24:28 -0800 (PST), Andrea
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> <negri.an...@gmail.com> wrote:
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Sorry for my bad explanation. I have an analitical vector field (ie the mathematical formula) and I have integrated it in order to obtain the analitical formula of streamlines (in 3D, in this case) ie now I have the trajectory of a point in the vector field in function of a parameter t (the time, if you want) in cylindric coordinates.
The problem is that: the trajectory is not defined as explicit function of time only like this

R=f(t)
phi=g(t)
z=h(t)

but are defined as implicit function of time, and the function involved are a non-invertible function. So, I need the idl equivalent of implicitplot3d maple command.

Subject: Re: plot of implicit function
Posted by Wout De Nolf on Fri, 19 Nov 2010 10:56:35 GMT
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On Fri, 19 Nov 2010 02:34:04 -0800 (PST), Andrea
<negri.andre@gmail.com> wrote:

>>> f(R,phi,z)=t
>>> g(R,phi,z)=t
>>> h(R,phi,z)=t

Ah, I see. So for each t you need to solve a non-linear system of equations (3 eq., 3 var.) in order to get the position (R,phi,z) of the particle (or whatever) at time t.

You could use NEWTON or BROYDEN to find (R,phi,z) for each t. Off course your "Vecfunc" changes every time (for each t), so you have to use a global variable t.

Can't think of anything else...

Subject: Re: plot of implicit function
Posted by Andrea[1] on Tue, 23 Nov 2010 10:13:30 GMT

On Nov 19, 11:56 am, Wox <s...@nomail.com> wrote:
> On Fri, 19 Nov 2010 02:34:04 -0800 (PST), Andrea
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> <negri.an...@gmail.com> wrote:
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> course your "Vecfunc" changes every time (for each t), so you have to
> use a global variable t.
>
> Can't think of anything else...

Fortunatley the velocity field is stationary.
Thanks a lot for help!

Andrea