

Grapher's bugs (update November 5th 2009)

A BIT OF HISTORY.

Once upon a time was "Curvus Pro X 1.3.2" which worked well until Tiger 10.4.11, and had 7 bugs.

Curvus Pro became Grapher 1.1, operating in Tiger as well. But Grapher 1.1 is Curvus Pro X 1.3.2 (with its 7 bugs) plus 15 new bugs, total 22 bugs !

Leopard 10.5.1 to 10.5.8 appeared including Grapher 2.0. Grapher 2.0 is Grapher 1.1 minus 6 bugs (from v. 1.1) plus 5 new ones, total 21 bugs in Grapher 2.0.

Then came Grapher 2.1 in Snow Leopard 10.6 : minus 7 bugs, still 13 remaining.

LIST OF BUGS IN CURVUS PRO X 1.3.2, GRAPHER 1.1, 2.0 and 2.1.

Bug nr. 1. (Grapher 1.1 & 2.0 & 2.1).

2D main window : changing its size on the display, changing equation list or equation editor fields sizes, modify width and height chosen in menu Format > Layout > Size.

— How to ? Don't do that !

Bug nr. 2. (Grapher 1.1 & 2.0 & 2.1).

Saving in a .gcn file a 2D work : four data are not saved, graph width and height, y axis scale minimum and maximum values.

— How to ? Save those four data on the top of the equations list. When opening a .gcn file, menu Format > Layout > Size > enter width and height (to be done twice), then menu View > Frame limits... > enter ymin and ymax.

Bug nr. 3. (Curvus Pro X 1.3.2, Grapher 1.1 & 2.0 & 2.1).

2D, menu Format > Layout > Size : in this pop-up window, units conversion from inch (or points) into millimeters (or cm) is false, based on 1 inch = 25.6 mm instead of 25.4 mm.

— in Grapher using French language, sizes in inches can't be used and repeat values in points ; inch is translated into "pouce", please use "inch" even in French.

— in Grapher using English language, the four units are available (with units conversion error above).

— How to ? cm or mm displayed sizes are to be multiplied by $25.4 / 25.6 = 0.9922$

Bug nr. 4. (Curvus pro X 1.3.2, grapher 1.1 & 2.0 & 2.1).

2D and 3D vector fields .gcn files : after opening such files, vectors are modified, the menu Equation > Evaluation shows a pop-up windows with missing coordinates or giving wrong values.

— How to ? Cancel one letter in the vector field equation, Return, Return, repair equation, Return, and everything becomes OK.

Bug nr. 5. (Grapher 1.1 & 2.0 & 2.1).

Menu View > Switch to 3D view : when in 2D, this command, in Curvus pro X, created a surface of revolution based on a 2D equation $y = y(x)$, y and x becoming r0 and z in the 3D graph. this capability does not exist in Grapher.

— How to ? Enter equation $r0 = f(z)$ in a 3D graph.

Bug nr. 6. (Grapher 1.1 & 2.0). Phi theta mess.

— Bug nr. 6.1. (Grapher 1.1 & 2.0 & 2.1). 2D new windows use x, y, r, theta coordinates (and refuse phi) ; 2D examples use x, y, r, phi (and refuse theta).

— How to ? Remake all 2D examples in Grapher 2.0 or 2.1 new windows (I did so, it's OK now).

— Bug nr. 6.2. (Grapher 1.1). 3D new windows use or show coordinates (x, y, z), (r0, theta, z) and ... (r, theta, theta) !! So spherical coordinates are not available from new windows. But 3D examples use (x, y, z), (r0, phi, z) and (r, phi, theta). Starting from an example spherical coordinates can be employed.

— Nr.6.2 bug is resolved in Grapher 2.0 & 2.1 with 3D coordinates (x, y, z), (r0,

theta, z), (r, theta, phi) for new windows and examples.

Bug nr. 7. (Grapher 1.1).

3D : axes systems are incomplete in preview window (2D 3D curves choice) as well in main windows.

— Bug resolved in Grapher 2.0 & 2.1.

Bug nr. 8. (Grapher 1.1 & 2.0).

2D axes labels : in axes Inspector, label format perpendicular cursor does not work properly, labels cannot be placed both sides of the axes.

— Bug resolved in Grapher 2.1.

Bug nr. 9. (Grapher 1.1).

Groups and Points Sets can't be titled.

— Bug resolved in Grapher 2.0 & 2.1.

Bug nr. 10. (Grapher 1.1 & 2.0).

Built-in-definitions : The modified Bessel function of the second kind $K_n(x)$ exists for $n = 0$ and 1 only.

— Bug resolved in Grapher 2.1.

Bug nr. 11. (Grapher 1.1).

Built-in-definitions : Grapher 1.1 quits when typing Airy functions $Ai(x)$ or $Bi(x)$.

— Bug resolved in Grapher 2.0 & 2.1.

Bug nr. 12. (Curvus Pro X 1.3.2, Grapher 1.1 & 2.0 & 2.1).

Built-in-definitions, Bessel spherical functions $j_n(x)$ and $y_n(x)$:

— In Curvus Pro, $j_n(x)$ is correct, but $y_n(x)$ copy $j_n(x)$ (same curve).

— In Grapher 1.1, $j_n(x) = 0$ for all n and x , $y_n(x)$ is not recognized.

— In Grapher 2.0 & 2.1, both functions are recognized but $j_n(x) = y_n(x) = 0$ for all n and x .

— How to ? Use j_n and y_n definitions, see < <http://mathworld.wolfram.com/> >. Be careful : j , y but not J , Y .

Bug nr. 13. (Grapher 2.0 in French language).

In the 2D-3D curves choice window, the 2D curve called Log-Log in english should keep the same name in French instead of "Historique-historique" !

— Bug resolved in Grapher 2.1.

Bug nr. 14. (Curvus Pro X 1.3.2, Grapher 1.1 & 2.0 and 2.1). 2D "Animate Parameter " :

In a new window (New Graph > 2D Graph), create a parameter animated curve, don't start the animation ; with the "move" tool (the hand) move the axes : the curve follows the axes. Start the animation, move axes using the move tool : the animated curve does not follow axes ; Stop animation, move axes again : the curve jumps to its right place ! Save in a .gcx file, re-open, this strange behaviour won't happen anymore.

— How to ? Nothing.

Bug nr. 15. (Grapher 1.1 & 2.0 & 2.1).

In 2D windows, menu Equation > Create Animation... : the different zoom animations move axes and grids only but not the curves.

— How to ? No idea.

Bug nr. 16. (Grapher 1.1 & 2.0 & 2.1).

In 3D windows, menu Equation > Create Animation... : the different zoom animations do nothing.

— How to ? No idea.

Bug nr. 17. (Curvus Pro X 1.3.2, Grapher 1.1 & 2.0).

Wrong unit name : menu Grapher > Preferences > Advanced > Trigonometric Mode : there is no angle unit called " gradient " ; the correct name is " grade " (= $\pi / 200$) (ref. < <http://www.bipm.org/> >).

— Bug resolved in Grapher 2.1.

Bug nr. 18. (Grapher 1.1).

Menu Grapher > Preferences > Advanced > Polar Angular Range, under $0...2\pi$ or $-\pi...pi$, there is (phi) instead of (theta).

— Bug resolved in Grapher 2.0 & 2.1.

Bug nr. 19.(Grapher 1.1). Wrong coordinates names :

Menu Equation > New Equation from Template..., the coordinates names are still default names used in Curvus Pro X 1.3.2.

— Bug nr. 19.1.(Grapher 1.1). 2D polar angle is phi insread of theta. Resolved in Grapher 2.0 & 2.1.

— Bug nr. 19.2. (Grapher 1.1). 3D coordinates : cylindrical (r0, phi, z) instead of (r0, theta, z) ; spherical (r, phi, theta) instead of (r, theta, phi) (the third one is the angle with Oz). Resolved in Grapher 2.0 & 2.1.

Bug nr. 20. (Curvus Pro X 1.3.2, Grapher 1.1 & 2.0 & 2.1).

Ghost definitions : create a group, some constant or function definitions inside the group (e.g. $k = 1.25$), delete the group ; the equation list is empty now, so k should be unknown ; enter k (alone) as a new equation, $k = 1.25$ is displayed in the equation list.

If there are constant or function definitions inside a group, suppressing the group do not cancel the definitions which remain active during the whole life of the main window.

— How to ? Empty the group (cancel all equations) before removing it.

Bug nr. 21. (Curvus Pro X 1.3.2, Grapher 1.1 & 2.0 & 2.1).

In OS X using French language, the decimal comma is not accepted in the 3D examples, the decimal point is required.

— How to for Grapher 1.1 : because of bug nr. 6.2, use decimal point instead of decimal comma in windows coming from 3D examples.

— How to for Grapher 2.0 & 2.1 : remake all 3D examples in new windows (I did so, it's OK now).

Bug nr. 22. (Grapher 2.0).

Empty groups : If a saved document as .gcx file contain an empty group, it's impossible to open it, the document is lost.

— How to : avoid empty groups, one letter alone in a group is enough.

— Bug resolved in Grapher 2.1.

Bug nr. 23. (Grapher 2.0).

nth derivatives of functions : there was no limit for n in Curvus Pro X 1.3.2 or Grapher 1.1. Unfortunately Grapher 2.0 recognize the first derivatives only, y' dy/dx ; y'' y''' d^5/dx^5 can't be used anymore. First order differential equations only can be entered. Second order differential equations from menu Equation > New Equation from Template... > Differential Equation, are not accepted By Grapher 2.0.

THIS IS THE WORST BUG : NO REMEDY, REDUCING GREATLY GRAPHER'S CAPABILITY.

— Bug resolved in Grapher 2.1. (THIS IS GREAT !)

Bug nr. 24. (Grapher 2.0).

3D animation creation using Menu Equation > Create Animation > Orientation, becomes impossible as soon as the 3D curve or surface has been modified (complicated) with the Inspector (resolution, line, hollow, contour, shadow, etc.). After it happened once, no more animation can be created in this window. This bug was not in Grapher 1.1.

— Bug resolved in Grapher 2.1.

Bug nr. 25. (Grapher 2.0 & 2.1). In 3D, menu Window > Display View angles : the four

commands Default, Above, Front, Left, don't work.

— How to ? Move the 3D graph with the mouse.

IMPROVING GRAPHER HELP is the purpose of this manual.

Hope all this be useful to Apple's developer in charge of Grapher !