New Visuals for Direction Fields in Maple

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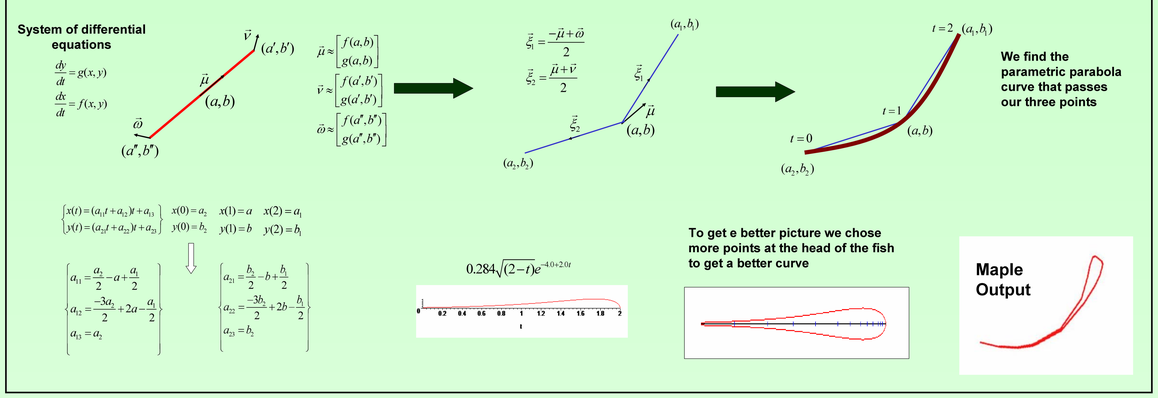
Introduction

A direction field gives a lot of information about the solutions to a system of differential equations without solving the differential equation(s). The DEplot command in Maple's DEtools package can create direction fields for (2-dimentional) autonomous differential equation(s). The purpose of this Poster is to introduce some new options for the DEplot command for visualizing the direction field.

Steps to create a fish or tad at the point (a,b)

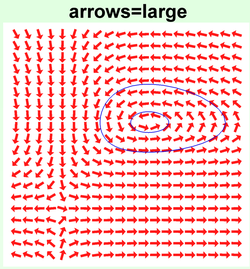


References

- Maple
- Elementary Differential Equation and Boundary Value problems - Boyce.Diprima
- VisualDsolve-Stan Wagon, Dan Schwalbe
- Numerical Analysis- Richard L.Burden, J. Douglas Faires

Below are the results of the DEplot of the system of differential equations $[y'(t)=x(t)(1-y(y)), x'(t)=0.3y(t)(x(t)-1)]$
x=-0.5..2,y=-0.5..2.

arrows=large



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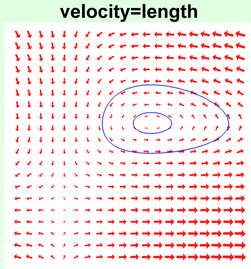

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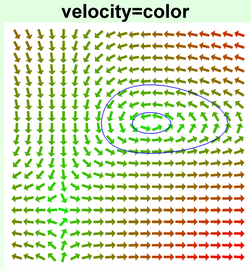

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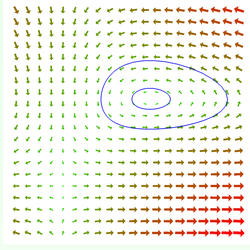

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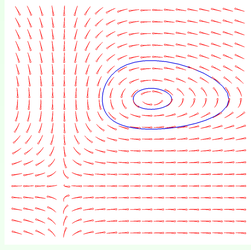

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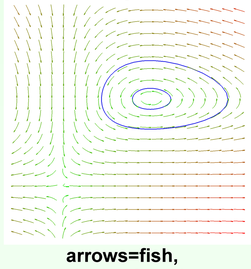

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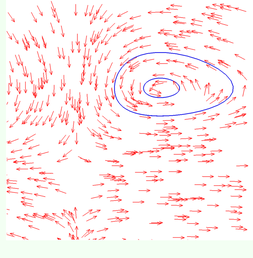

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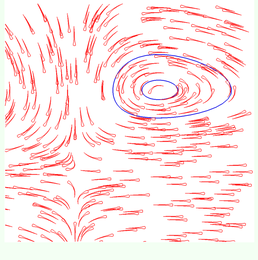

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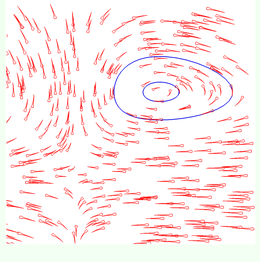
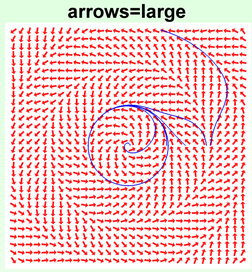


Below are the results of the DEplot of the system of differential equations $[x'(t)=\sin(r)x(t)-y(t), y'(t)=\sin(r)y(t)+x(t)], r=1.5\sqrt{x^2(t)+y^2(t)}$
x=-5..5,y=-5..5.

arrows=large



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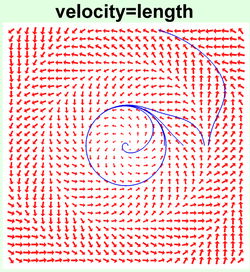

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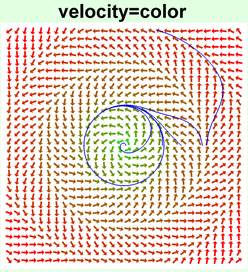

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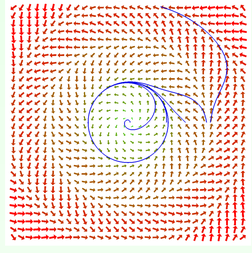

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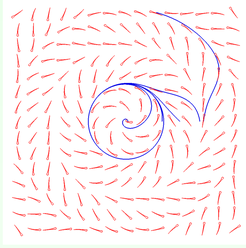

arrows=tads velocity=color, length

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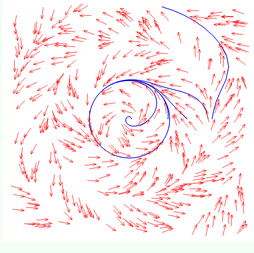

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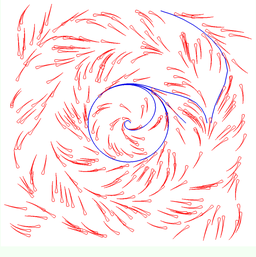
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