

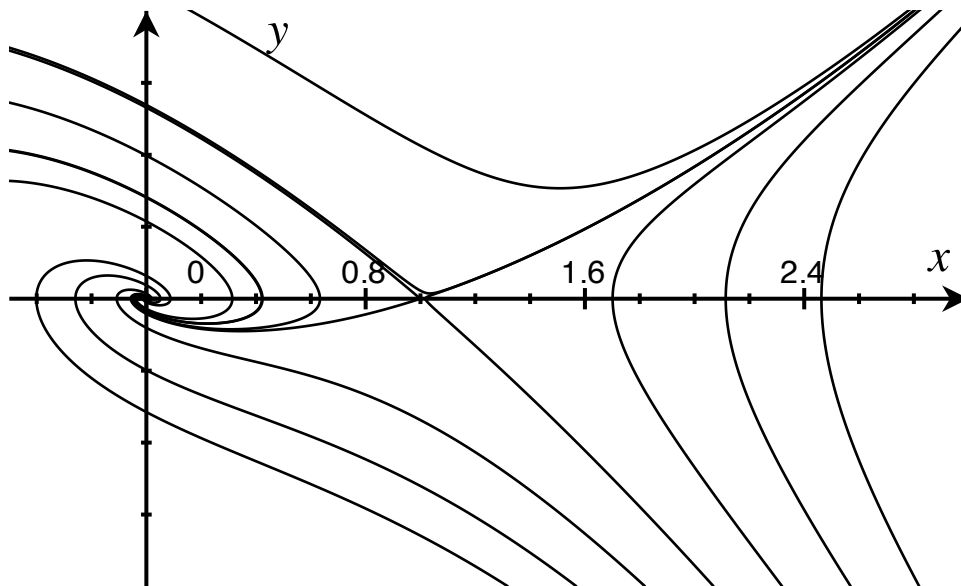
Fisher's Equation

In class we examined the traveling-wave solutions of *Fisher's equation*:

$$\frac{\partial N}{\partial t} = N(1 - N) + \frac{\partial^2 N}{\partial x^2}$$

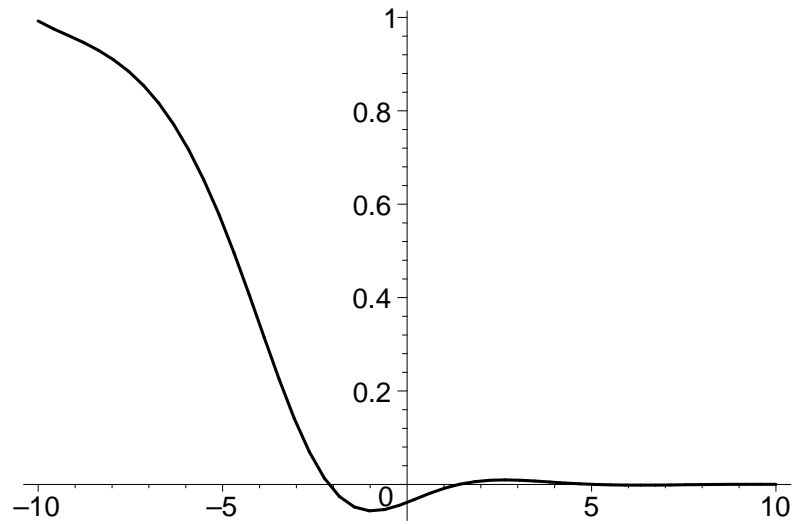
by letting $N(x, t) = u(x - ct)$.

Here is the phase plane for $c = 1$. Note that in this diagram, negative x corresponds to negative u , and hence disallowed solutions.



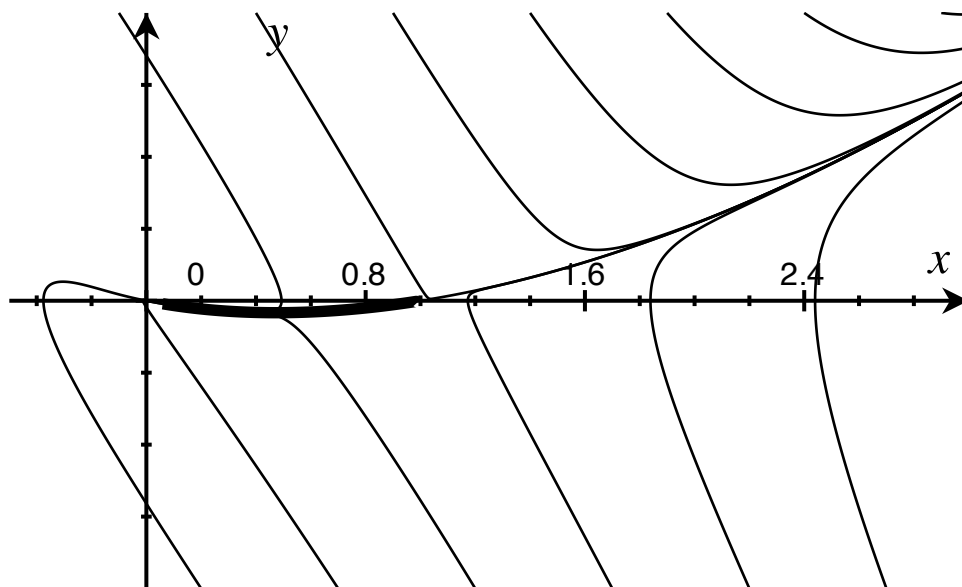
Phase plane for $c = 1$.

We also graph the traveling-wave solution corresponding to $c = 1$; note the negative values.



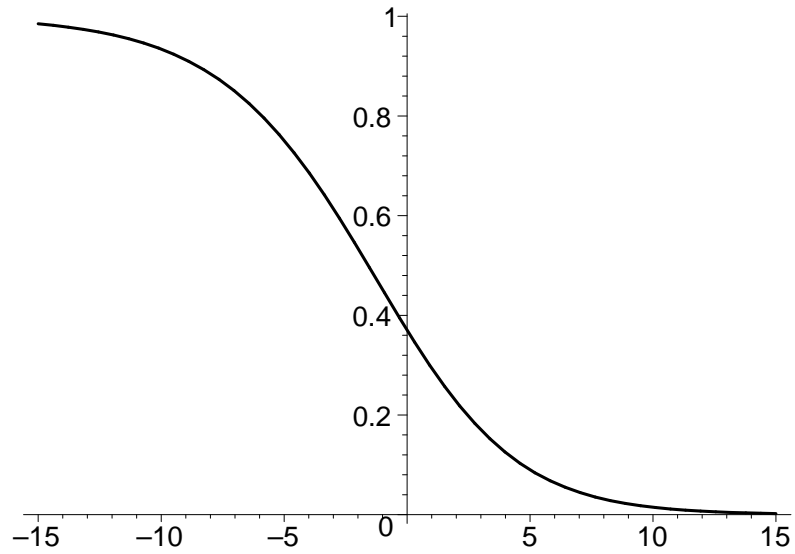
Traveling-wave solution for $c = 1$.

Here is the phase plane for $c = 3$. Note that in this diagram, the traveling-wave solution doesn't cross the y -axis. (Negative values of y are acceptable, since they correspond to negative u' , which we know must occur.)



Phase plane for $c = 3$.

We also graph the traveling-wave solution corresponding to $c = 3$.



Traveling-wave solution for $c = 3$.