It is very rare that a Blog Wyrm publication date coincides with the holy day of Good Friday. World-wide, this day invites all of us to recall how an innocent man willingly endured death in order to save everyone else. And while Christmas is important because it heralds the beginning and Easter is even more important because it demonstrates the victory, Good Friday should help us understand that sometimes there is a lot of pain to dealt with in between and that we should never lose hope.

One of the most enduring methods used for time series analysis is the family of real time estimation and prediction methods based on the Kalman filter. Proposed by Rudolph Kalman in 1960, the filter algorithm that bears his name finds itself in a wide range of applications as well as a wide range of variations based on need. [Aristotle2Digital](https://aristotle2digital.blogwyrm.com/?p=1731) presents the basic algorithm in its original setting of a linear system of equations as a starting point for more involved future explorations.

Milton Friedman, when addressing a young woman, visibly distressed by the professor’s logical demonstration of the counterproductive aspects of equal-pay-for-equal-work laws, famously said “[I’m on your side but you’re not.](https://www.youtube.com/watch?v=of4QMhzQeAM)” [CommonCents](http://commoncents.blogwyrm.com/?p=1303) shows how a similar situation applies to the city of San Francisco, even as it’s starting to recognize some counterproductive aspects in its own economic legislation, that has made it it’s own worst enemy.

In some systems, like the solar system, the specific interactions between constituent parts are key to understanding its behavior. In other systems, such as a glass of water, only large scale collective interactions matter while the specific details of the one-on-one interactions don’t. But in critical phenomena, such as a phase transition in water, it is an interesting observation that the system in question exhibits aspects of each extreme. [UndertheHood](https://underthehood.blogwyrm.com/?p=2200), using some simple numerical experiments, shows how all length scales seem to be present near the critical probability in the percolation model.

Enjoy!