

trainees to make assumptions; they do not teach you to build an error rate around those assumptions—but their error rate is so large that it is far more significant than the projection itself!

The second fallacy lies in failing to take into account forecast degradation as the projected period lengthens. We do not realize the full extent of the difference between near and far futures. Yet the degradation in such forecasting through time becomes evident through simple introspective examination—without even recourse to scientific papers, which on this topic are suspiciously rare. Consider forecasts, whether economic or technological, made in 1905 for the following quarter of a century. How close to the projections did 1925 turn out to be? For a convincing experience, go read George Orwell's *1984*. Or look at more recent forecasts made in 1975 about the prospects for the new millennium. Many events have taken place and new technologies have appeared that lay outside the forecasters' imaginations; many more that were expected to take place or appear did not do so. Our forecast errors have traditionally been enormous, and there may be no reasons for us to believe that we are suddenly in a more privileged position to see into the future compared to our blind predecessors. Forecasting by bureaucrats tends to be used for anxiety relief rather than for adequate policy making.

The third fallacy, and perhaps the gravest, concerns a misunderstanding of the random character of the variables being forecast. Owing to the Black Swan, these variables can accommodate far more optimistic—or far more pessimistic—scenarios than are currently expected. Recall from my experiment with Dan Goldstein testing the domain-specificity of our intuitions, how we tend to make no mistakes in Mediocristan, but make large ones in Extremistan as we do not realize the consequences of the rare event.

What is the implication here? Even if you agree with a given forecast, you have to worry about the real possibility of significant divergence from it. These divergences may be welcomed by a speculator who does not depend on steady income; a retiree, however, with set risk attributes cannot afford such gyrations. I would go even further and, using the argument about the depth of the river, state that it is the lower bound of estimates (i.e., the worst case) that matters when engaging in a policy—the worst case is far more consequential than the forecast itself. This is particularly true if the bad scenario is not acceptable. Yet the current phraseology makes no allowance for that. None.

It is often said that "is wise he who can see things coming." Perhaps the wise one is the one who knows that he cannot see things far away.

Get Another Job

The two typical replies I face when I question forecasters' business are: "What should he do? Do you have a better way for us to predict?" and "If you're so smart, show me your own prediction." In fact, the latter question, usually boastfully presented, aims to show the superiority of the practitioner and "doer" over the philosopher, and mostly comes from people who do not know that I was a trader. If there is one advantage of having been in the daily practice of uncertainty, it is that one does not have to take any crap from bureaucrats.

One of my clients asked for my predictions. When I told him I had none, he was offended and decided to dispense with my services. There is in fact a routine, unintrospective habit of making businesses answer questionnaires and fill out paragraphs showing their "outlooks." I have never had an outlook and have never made professional predictions—but at least *I know that I cannot forecast* and a small number of people (those I care about) take that as an asset.

There are those people who produce forecasts uncritically. When asked why they forecast, they answer, "Well, that's what we're paid to do here."

My suggestion: get another job.

This suggestion is not too demanding: unless you are a slave, I assume you have some amount of control over your job selection. Otherwise this becomes a problem of ethics, and a grave one at that. People who are trapped in their jobs who forecast simply because "that's my job," knowing pretty well that their forecast is ineffectual, are not what I would call ethical. What they do is no different from repeating lies simply because "it's my job."

Anyone who causes harm by forecasting should be treated as either a fool or a liar. Some forecasters cause more damage to society than criminals. Please, don't drive a school bus blindfolded.

At JFK

At New York's JFK airport you can find gigantic newsstands with walls full of magazines. They are usually manned by a very polite family from



Caravaggio's *The Fortune-Teller*. We have always been suckers for those who tell us about the future. In this picture the fortune-teller is stealing the victim's ring.

the Indian subcontinent (just the parents; the children are in medical school). These walls present you with the entire corpus of what an "informed" person needs in order "to know what's going on." I wonder how long it would take to read every single one of these magazines, excluding the fishing and motorcycle periodicals (but including the gossip magazines—you might as well have some fun). Half a lifetime? An entire lifetime?

Sadly, all this knowledge would not help the reader to forecast what is to happen tomorrow. Actually, it might decrease his ability to forecast.

There is another aspect to the problem of prediction: its inherent limitations, those that have little to do with human nature, but instead arise from the very nature of information itself. I have said that the Black Swan has three attributes: unpredictability, consequences, and retrospective explainability. Let us examine this unpredictability business.*

* I owe the reader an answer concerning Catherine's lover count. She had only twelve.