Epsilon Theory

The World 'Twixt Ought To and Is

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I don't like the word 'abstractions' very much because most people don't think in abstractions. That is too difficult for them. They think in stories. And the best stories are not abstract; they are concrete. *Sapiens, by Yuval Noah Harari*

Text format. Vito Corleone was speaking of his son, Michael, and these were some of the people he intended to blame for an "unlucky accident".

I remember that there was always a street preacher on the college green at Penn. Like all prophets in his own town, he was never well-received.

Now, this was back in the days before veganism and keto were really *things,* and I think Crossfit had only just been invented. So the only means available to students to scream into the void “I am myself!” and “I am very intellectual!” and “Somebody please notice me!” all at once without expending any real effort were smoking and militant atheism.

My God, did this man take some abuse. And by God did he earn it.

Not because he was the giant-offensive-placards kind of street preacher (he wasn’t). Not because he was the hell-and-damnation kind, either (he wasn’t). Because he had a knack for getting himself into debates with college students. Not only that – because he allowed the students to badger him into taking ridiculous and strident positions on irrelevant topics that irrevocably damaged whatever true purpose he sought to achieve.

I was there on the periphery of a small crowd of eager, dickish young minds one day when our preacher passionately described how dinosaur bones were put into the earth by God to confound the wisdom of man and test his faith. Some mustachioed tankie was really feeling his oats (again, avocado toast being some years away at this point) and engaged him on the specific mechanics of God’s intervention. *How, exactly, do you think that God worked this miracle, minister? Does he intervene in real time with the instruments which measure the quantity of carbon-14? If so, are you specifically making the argument that God adjusts how both beta radiation measurement tools and spectrometers counting carbon-14 atoms function? Or is the composition of the bone itself changed?*

Within any religious community, there are legalistic subcultures which find positively nonsensical hills like this to die on. Around those hills, all sorts of uncomfortably specific explanations to tie everything together are built as hedges, take root and flourish. Want a nonsensical pseudo-scientific analysis of ancient Greek vernacular to argue that the wine Jesus miraculously created was just non-alcoholic grape juice (lamest miracle ever, by the way) to justify prohibition-as-doctrine? Somebody will be your huckleberry. Want a church-run webpage which takes serious intellectual issue with a famous musical’s farcical contention that God would punish a five-year old for stealing a maple-glazed donut since God would clearly only punish the child if he were eight? **Huckleberry.**

For most people of faith, these behaviors are powerfully cringeworthy. For all the secular protestations of their acolytes, the communities built around financial markets and economics are no less religious. They are no less prone to building edifices of oddly confident and hyper-specific speculation around their pre-existing models for predicting behaviors. And for most professional investors, they ought to be no less cringeworthy.

Please be seated. Let us begin our sermon today with some soggy, religious garbage from Nobel Laureate Paul Krugman.

There’s been a lot of speculation about why the stock market reacts so strongly to trade policy news — way out of proportion to the direct economic impacts of Trump tariffs. Today’s surge after Trump’s decision to delay some tariffs deepens the mystery. The best going explanation of the tariffs/market link *was that markets took tariff announcements as indications of broader decision process; to be blunt, how crazy Trump is. Hard-line announcements suggested more radicalism to come, softer announcements more rationality. But this was obviously a defensive move to avoid price hikes before Christmas, not a change in Trump's world view or improvement in his decision-making. So why respond so strongly?*

– Nobel Laureate Paul "Nobel Laureate" Krugman – who has a Nobel Prize btw – via Twitter (8.13.2019)

Now, this is extremely stupid.

I don't mean to be mean to Dr. K, who is *not* stupid. The unfortunate reality, however, is that most very smart people tend to have deeply stupid opinions and ideas about a great many things. Sadly, many of those same opinions and ideas often become articles of faith over which that person drapes his reputation, intellect and mental models which successfully supported earlier ideas and opinions.

It is pretty easy to unpack the three articles of faith at play here. Krugman has in his head a model for which each of the following is true:

- Daily marginal price-setting behaviors are predictable as the output of mostly-rational optimizers;
- Trump is objectively crazy; and
- Trump's craziness is so profound (and market participants are so ill-disposed to care about anything else) that changes in Paul's perception of that craziness can explain functionally all of the daily variance in asset prices.

Let no one tell you that living in 2019 is not a joy.

Consider: you, dear reader, can watch in real-time as a Nobel Laureate publicly grapples with confusion that a multi-trillion dollar market might deviate for a single day from his single variable, Perception-Of-Trump's-Craziness-based model. Consider further that you may watch him work out – again, in full view of the public – that the market must clearly have overestimated the extent to which a simple Christmas reprieve on tariffs ought to have reduced the value of their Perception-Of-Trump's-Craziness variable.

This is God-burying-dinosaur-bones-to-piss-off-Neil-deGrasse-Tyson level crazy. This is Jesus-becoming-the-hero-of-the-party with-grape-juice level nuts. This is God-punishes-eight-year-old-donut-thieves-but-not-five-year-olds level insane.

And yet this kind of bizarre model-clutching lunacy is not just a possibility. It is an inevitability when you live in a world of prediction, in which your aim is to find The Answer to questions for which even a shred of epistemic humility would tell you that your model is shit.

It doesn't really help that we've created academic and professional environments in which we respond to models that don't produce The Answer by making adjustments to reflect what they missed most recently, calling it *Bayesian Updating*, finding a time horizon, data set and parameters for which we can get an acceptable p-value, and publishing a new paper.

Or y'know, launching a new fund.

The prelates of the preposterous aren't the only characters in our world, however. We also have to contend with the agnostic – the person whose response to the difficulty of knowing *everything* is to believe that we cannot possibly know *anything*. Epsilon Theory was founded to ceaselessly harass and make fun of the *religious* pole (which we hope you understand we mean in an entirely secular sense) but to offer hope to those drawn to the desperation of the *agnostic* pole.

We respect the difficulty of active management. In our own portfolios, we happily use index instruments in many markets. But we don't believe that it is possible to be a passive investor any more than it is possible to be a passive citizen or a passive friend or a passive partner or passive father. We will make decisions, and those decisions will explicitly or implicitly express views about the world and the way that it works and is working.

*We reject the learned helplessness of the **Long Now**.*

By rejecting that learned helplessness and embracing that **we *are all active investors,*** however, we will inevitably discover that there is an embedded layer of belief at work in nearly every investment strategy – a phantom model which exists between the **ought to** of our investment philosophy and the **is** of its results. That layer is, very simply, what we believe will cause an actual person (or computer programmed by a person) participating in the price-setting process for a security to change what price they are willing to pay or accept for that security.

The fundamental investor has in their head a model of the world in which they may predict how prices will change based on some assessment of the business today and in the future. Even beyond any fallibility in their own assessments and predictions, the phantom model between **ought to** and **is** – for them – is a set of assumptions about what other investors care about, what kind of information they will respond to, and over what time horizon.

Many of those strategies – systematic and discretionary alike – can be shown to work over many markets and many horizons. And yet, every investor with a shred of intellectual honesty will admit their concerns then going live with some new approach:

I am worried that the conditions under which I built the case for my strategy, whether the mental models and discretionary heuristics built over a long, successful career, or the systematic backtests I similarly produced, are a reflection of some state of the world that will not be the future state of the world.

Our skepticism about backtests, simulations and historical results is our acknowledgment of the phantom model in an emotional sense, to be sure. But it must also be an intellectual acceptance of the massive mathematical erosion in true explanatory power when our partially correlated models pass through an additional layer of partial correlation. We can't always explain it away with "over a long enough time horizon" hand-waving in defense of our management fee annuity stream.

(Apologies if you did not know before now that the people who run money for you refer to you as an annuity stream. They do. Not figuratively. They literally say that in meetings.)

The problem for active investors (i.e. all investors), the problem I grappled with for so much of my career, and the problem I still grapple with at times in my own mind, is how to demonstrate epistemic humility about this loss in explanatory power without descending into agnostic nihilism. I have come to believe that there are three – and only three – ways:

1. **Parsimony** – Adopting extraordinarily high standards and requirements for the addition of a model or framework for making predictions. This is the contribution of the AQRs and Bridgewaters of the world.

2. **Ensembles** – Incorporating ensembles of models to composite concepts without excessive reliance on any one framework. This is the contribution of Two Sigma, **our friends at Newfound** and the discretionary work products of a small number of especially process-oriented minds.

3. **Concretion** – Reducing the number of layers of abstraction between process and models on the one hand, and the Thing for which they are a representation, on the other.

Why do we study common knowledge – narratives? Because we think that studying, identifying and measuring the existence and effects of narratives can be a force for concretion of our investment theses. Can broader adoption of narrative analysis techniques, in fact, deliver on the promise of concretion? Can we better understand how, when and why different facts and events will matter to the marginal market participant in the price-setting process?

I don't know. I think so. Our historical examinations of the question have produced promising results, but I fear that I am still an agnostic nihilist at heart.

Now, if you are thinking that narrative-as-force-for-concretion is a contradiction, then very well, it is a contradiction. **Narrative is an *abstraction*from the real world, from cash flows, and from the long-term value creation potential of assets and intellectual property. But Narrative is also a *concretion*of the observable evidence of what the crowd believes that the crowd believes, what they care about and what they are paying attention to.**

We are large, we contain multitudes, et cetera et cetera.

Soros's quip about observing instead of predicting – *that* is concretion. It is a kind of process which permits decision-making based on observation, with fewer phantom models 'twixt *ought to and is*. Taleb's famous observation "don't tell me what you think – show me your portfolio" is concretion, too, albeit a concretion of the phantom model of the language we use to describe why we own something. It is an indictment of manager surveys and the like, which are reflections of first level thinking rather than the thinking that drives actual asset price-determining decisions at the margin.

But while the Taleb heuristic is effective as a thought experiment into the importance of skin in the game, it is less useful (and was never intended) as a specific model for understanding the spread-crossing tendencies and response profiles of various investors to new information. For one, as anyone who has examined the positions of fund managers very often will tell you, someone's positioning will often tell you a great deal about their constraints, their obligations and their boss's predispositions, and often very little about why their view of price would change in the presence of new information. For another, because a portfolio is a complex thing, two sensible investors may be equally long or short a position for different reasons that would precipitate massively different responses to new information. Knowing what someone's portfolio looks like is concretive in terms of language, but not at all in terms of a model for predicting future asset prices.

So why the focus on defining narratives through financial media, which we all know to be riddled with *Fiat News*, often conflicted and frequently produced *in service to its purported subject matter*? Because it is the only world in which we learn what everyone wishes everyone else to believe. Because it is the only world in which we know what everyone else knows, because we know that they have seen the top-fold of the WSJ and the *Dear Sirs* of the Financial Times.

Because it is our best chance to map the world 'twixt *ought to* and *is*.

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