

## The definition of knowing a fact as ‘Justified True Belief’

# What it means to ‘know a fact’

While imperfect and incomplete, the standard, or traditional, analysis of knowledge serves us well and is worth considering



I believe it’s important to begin this essay by reminding us all of our shared, ultimate objective in considering the epistemology of innovation, to gain insight into “how breakthrough innovators come to know what to do today – in order to succeed commercially in the future.” In the present essay, our focus will be on what it means that the best breakthrough innovators “**know what** to do today”.

By grasping what it means to ‘know a fact’, we can gain clarity about what constitutes a good, innovative idea for us to pursue. We also can gain insight into the limitations – or, stated more positively, the range of applicability – of such knowledge.

Although notable and important exceptions exist, epistemologists dating back to Plato have come to consensus regarding a first order, simple **Standard, or Traditional, Analysis of Knowledge** – that is, what is necessary to say that someone knows a fact or proposition.<sup>i</sup> Three conditions are said to be required for such factual or propositional knowledge (‘know what’) to exist:

- Belief – The person believes<sup>ii</sup> the proposition.
- Truth – The proposition is true.<sup>iii</sup>
- Justification – The person is justified in believing the proposition.<sup>iv</sup>

Simply put, a person said to ‘know a fact’ will be able to say, “I believe it, it’s true and I’m justified in believing it.” This is the definition of knowing a fact as ‘Justified True Belief’.

### A simple, personal example

The occupants of our office suite celebrate Christmas by placing small gifts in each other’s stockings hung along the

corridor into our wing. A few years ago, I received a gift that looked like the item in the photo at the top of this essay. Its shape, colors, size, texture, etc. and that it appeared in a Christmas stocking justified my belief that it was a candy cane. I knew a fact – that I had received a candy cane.

### An example from innovation

In our recent book,<sup>v</sup> we tell the story of breakthrough innovation exemplar Tom Osborn of P&G.

Working in the feminine hygiene products business, Tom recognized that many of his colleagues came from the diaper business and carried with them an unarticulated **belief** that a feminine hygiene pad could be understood as an extrapolation of a diaper. In many respects, Tom’s colleagues were **justified** in their **belief**, as both feminine hygiene pads and diapers were employed to catch fluid. More importantly, products based on that line of thinking sold well in the marketplace. Tom, however, **believed** that the diaper paradigm could be improved upon. After studying the problem in detail, Tom began to **believe** that the proper paradigm for a feminine hygiene product was that of a garment, not a diaper; Tom was **justified** in this **belief** by what he learned while carefully studying the problem.

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However, management initially **believed** that it was best to remain in production with the diaper-paradigm products. That the market already had approved the existing paradigm contributed significantly to the **justification** of their **belief**. Ultimately, Tom was able to successfully convince them to change paradigms – not an easy task. P&G was rewarded in the marketplace for making this move that led to the ‘billion-dollar brand’, Always® Ultra. Such success in the marketplace is perhaps the strongest **justification** available to breakthrough innovators in industry that a **belief** is **true** – at which point we have **‘Justified True Belief’**, that is, we know a fact.

### Some important considerations relative to innovation

While chapters and entire books have been written on the Standard, or Traditional, Analysis of Knowledge, I believe that it is important for me to highlight a handful of considerations that I see as among the most critical for you to reflect on: ➤

1. We often are justified in our belief (i.e. 'know a fact') only over a specified range of conditions. I know that Newtonian, non-linear, and quantum mechanics each hold on a certain scale, under certain assumptions.
2. "Justification is something that comes in degrees – you can have more or less of it." Thus, our confidence in what we truly know can vary. (Feldman<sup>i</sup> p. 21)
3. We must not confuse being justified in our belief and being able to explain our justification. While making it difficult to convince others, there will be times at which, perhaps based on experience that we are not able to articulate, we are justified in our belief. (Feldman<sup>i</sup> p. 22)
4. "Many beliefs are credible because they derive from a reliable source ... the testimony of a reliable witness ... or direct personal observation." (Williams<sup>i</sup> p. 25)
5. We have epistemic responsibility to behave appropriately when it comes to knowing something. That is, we must not negligently ignore important counter-evidence. (Williams<sup>i</sup> p. 22)
6. There is a difference between belief and will – "belief is generally not subject to voluntary control." As such, we must not impose our will or desire for a belief to be true by advocating inappropriately for it.<sup>vi</sup> (Williams<sup>i</sup> p. 25)
7. Finally, in a way following several of the preceding considerations, there is, not surprisingly, a difference between real and apparent knowledge. We may have confidence that we are justified in stating that we know a fact, yet, ultimately, it may not be true. (Feldman<sup>i</sup> p. 22)

#### And, now, the rest of the story ...

This past spring I was minutes from a scheduled meeting with the Dean and had a taste for just a little piece of candy. Remembering that candy cane from well over a year earlier, I pulled it from my desk and attempted to break off a small piece from the long end of it – but, with no success! Applying

steadily increasing force didn't help. As I struggled with it, I began to speculate that this candy cane (which I had received unpackaged, a fact that truly disturbed but did not stop me – hey, I'm an engineer) had gone bad in some very unusual and intriguing way. With less than a minute to spare, in desperation, I grabbed the hook of the cane and its stem and gave it all I had, upon which I broke off a much larger piece than I had hoped for. Throwing into my mouth with the expectation that I wouldn't finish it, but still enjoy it – if only for a moment, just to get a quick taste – I immediately realized that I had attempted to eat a plastic Christmas-tree ornament.

So, how does this help us synthesize the material in this essay to better grasp what it means to 'know a fact'? ■

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<sup>i</sup> Some references to explore if you want to take a first step in digging deeper into this topic include: Michael Williams, *The Standard Analysis*, Chapter 1 in his *Problems of Knowledge: A Critical Introduction to Epistemology* (New York, NY: Oxford University Press, 2001); Richard Feldman, *The Traditional Analysis of Knowledge*, Chapter 2 in his *Epistemology* (Upper Saddle River, NJ: Prentice Hall, 2003); Peter Millican, *General Philosophy*, (<http://podcasts.ox.ac.uk/series/general-philosophy>) begin with episode 5.1 for nearly an hour on the topic of knowledge from this series of lectures delivered in 2009 to first-year philosophy students at Oxford; and *The Analysis of Knowledge* in the Stanford Encyclopedia of Philosophy (<http://plato.stanford.edu/entries/knowledge-analysis/#JTB>).

<sup>ii</sup> Per Feldman (p. 10 of reference i above), "To believe something is to accept it as true."

<sup>iii</sup> For those who may already be wondering about this, it is important to point out that the Standard, or Traditional, Analysis of Knowledge assumes and accepts that there are objective facts that we can know to be true.

<sup>iv</sup> It is justification that causes many of the challenges facing epistemologists in their efforts to define what it means to know a fact.

<sup>v</sup> Abbie Griffin, Raymond L. Price and Bruce A. Vojak, *Serial Innovators: How Individuals Create and Deliver Breakthrough Innovations in Mature Firms* (Palo Alto: Stanford University Press, 2012).

<sup>vi</sup> As noted by John Adams in his speech for the defense during the Boston Massacre trial, "Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passions, they cannot alter the state of facts and evidence."

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*'On the Epistemology of Innovation: How Breakthrough Innovators Connect the Dots' is a series of brief, occasional essays addressed to executives, managers, and technologists responsible for innovation in industry. Its purpose is to challenge readers to reflect broadly and deeply on the practice of innovation – in particular on how innovators come to know what to do today – in order to succeed commercially in the future. Essays are available without charge at the University of Illinois' digital archive at <https://www.ideals.illinois.edu/handle/2142/27667>. The discussion group at <http://epistemology-of-innovation.com> is a place to provide feedback and dialog with the author and others regarding these essays, as well as to register to receive notice of new essays as they are issued.*