

This post was originally published in 2006 on the Alphapsy blog.

Explanations are necessary. Without them, hunter-gatherers would have trouble learning sophisticated hunting techniques and we would have trouble learning how to program our VCRs (equally terrible threats). Since natural selection tends to make us like things that are good for us, we would expect that being able to explain something would be agreeable. Alison Gopnik's aptly titled paper "[Explanation as Orgasm](#)" makes this point very well. On the other hand, explanations can be disquieting: some might remember their first confrontations with psychology and neuroscience ("I did that because of my unconscious drives / PFC / short term memory limits?!?") as being something of a distressing experiment. A very nice set of [experiments](#) published in 2005 suggests why not all explanations are comforting.



Two explanations for life. Depending on your convictions and knowledge, either can be more or less comforting or discomfoting. One thing is sure though: having a beard is necessary to explain life.

In "Explanation as Orgasm", Alison Gopnik draws our attention to the links between the cognitive aspects of explanation and its phenomenology. She subsumes the phenomenology under the terms "hmm" and "aha", the former being the feeling of curiosity that triggers the search for an explanation and the latter being the agreeable feeling that accompanies the finding of an explanation. She claims, rightly I think, that these feelings have been understudied and that they are particularly important in children who are in the process of revising their theories about the world. And this is where I stop agreeing with her since her (and Meltzoff's) theory about children as little scientists strikes me as not being very plausible. I can't go into that here, but even if one doesn't buy Gopnik's theories, she is still right that paying more attention to the phenomenology of explanation will certainly prove to be useful. By the way, if you adopt a modular view of the mind, there are links to be made between the hedonistic sensations that accompany the findings of explanations and the fact that these explanations might be tapping our modules in exactly the right way (see this [post](#)).

That was for the comforting aspects of explanation. Then again, if explanations are tapping our modules in the right way, and since these modules are supposed to be there for sound evolutionary

reasons, then this shouldn't come as a surprise. What is more surprising is why we find some explanations so disquieting. In a [paper](#) published in 2005 in *Psychological Science* Jesse Preston and Nicholas Epley give us some clues as to why this is so.

In their experiments, people had to give either explanations for or applications of a given belief. For example, they might be communicated some information that leads to entertain a new belief (such as "psychological research has demonstrated that we are more attracted to people whose traits are similar to our own"). Participants then had to find either explanations (how can I explain it) for or applications (what can I explain with it) of this new belief. The participants were then asked to rate the value of the belief. Those who had to find explanations attributed less value to the belief than did participants who had to look for applications.

They replicated this finding with other people's beliefs (experiment 2) and, more importantly, with deeply held beliefs in experiment 3. In this experiment, participants had to give either explanations or applications of the existence of God (only the results of religious participants were analyzed). Again, it was found that participants who had had to give explanations for the existence of God attributed less value to their belief in God than those who had had to give applications of this same belief (and this effect was proportional to the number of applications or explanations given).

In these experiments people didn't have to report on their feelings, so it's an extrapolation to say that finding or being confronted with explanations for our deeply held beliefs is disconcerting, but I think it is a reasonable one. As the authors conclude, "We also believe these experiments can help account for people's resistance to explanations for their cherished beliefs." Darwinism is a case in point. When people are confronted with new or alternative explanations for their beliefs that God created life on earth, they might not find the experience very enjoyable.

Since I'm quite fond of Just-So Stories, I can't help but speculate on why this might be so. After all, you might expect that having explanations for things is good, period. Why is it sometimes disquieting? My guess would be that this is part of a set of defense mechanisms that protects us against communicated information. When we find an explanation disconcerting, more often than not this explanation has been communicated. And we have good reasons to be cautious about communicated information. When some communicated information forces us to revise some of our deeply held belief, a feeling of discomfort could be a warning signal: somebody is trying to convince us of something that might not be good for us.

This is wild speculation. Moreover it conflates to effects: the first is that we tend to think that causes are more important than effects (basically what is shown in the study mentioned here, but also in some other work in causal reasoning), and the second that we don't like having to revise some of our beliefs, even if it is only their importance (for example, a believer who accepts a Darwinian explanation for life might attribute less value to her belief in God).

These topics are very interesting, and the field of "explanations" has received much attention recently. If you want to know more, there was a nice short [paper](#) by Tania Lombrozo in *Trends in Cognitive Sciences*, and a more substantial [one](#) by Frank Keil in the 2006 volume of the *Annual Review of Psychology*.