I got this when I searched for the title I've chosen for my Master thesis. It was published in 2012. I don't think I read it then when it came out. I dunno maybe I saw just the title go by on birdSite. It might have gotten lodged in my subconscious somehow and then started rattling around in there when I started writing. The Economist isn't really the type of publication I tend to go in for. It doesn't say explicictly that the article has been cut down for Internet publication but I think it might have been longer in the print version. There's no writer named in the article. Maybe they did that so that I would say it might have been written by a bot. Probably not right? Too early. Anyway my title implies a plurality of valleys for all the varying thresholds for different parameters for all kinds of different folks. Pretty close tho so thought I'd mention it at least.

Mapping the uncanny valley

Artificailly created beings, whether they be drawn or sculpted, are warmly accepted by viewers when they are distinctively inhuman. As their appearances are made more real, however, acceptance turns to discomfort until the point where the similarity is almost perfect, when comfort returns. This effect, called “the uncanny valley” because of the dip in acceptance between clearly inhuman and clearly human forms, is well known, particularly to animators, but why it happens is a mystery. Some suggest it is all about outward appearance, but a study just published in Cognition by Kurt Gray at the University of North Carolina and Daniel Wegner at Harvard argues that there can be something else involved as well: the apparent presence of a mind where it ought not to be.

According to some philosophers the mind is made up of two parts, agency (the capacity to plan and do things) and experience (the capacity to feel and sense things). Both set people apart from robots, but Dr Gray and Dr Wegner speculated that experience in particular was playing a crucial role in generating the uncanny-valley effect. They theorised that adding human-like eyes and facial expressions to robots conveys emotion where viewers do not expect emotion to be present. The resulting clash of expectations, they thought, might be where the unease was coming from.

To test this idea, the researchers presented 45 participants recruited from subway stations and campus dining halls in Massachusetts with a questionnaire about the “Delta-Cray supercomputer”. A third were told this machine was “like a normal computer but much more powerful”. Another third heard it was capable of experience, by being told it could feel “hunger, fear and other emotions”. The remainder were told it was capable of “self-control and the capacity to plan ahead”, thus suggesting it had agency. Participants were asked to rate how unnerved they were by the supercomputer on a scale where one was “not at all” and five was “extremely”.

Dr Gray and Dr Wegner found that those presented with the idea of a supercomputer that was much more powerful than other computers or was capable of planning ahead

were not much unnerved. They gave it a score of 1.3 and 1.4 respectively. By contrast, those presented with the idea of a computer capable of experiencing emotions gave the machine an average of 3.4. These findings are consistent with the researchers' hypothesis. There seems to be something about finding emotion in a place where it is not expected that upsets people. This led Dr Gray and Dr Wegner to wonder if the reverse, discovering a lack of experience in a place where it was expected, might prove just as upsetting.

To explore this, they presented a further 44 volunteers, recruited in the same manner as those in the earlier experiment, with a picture of a man. A third were told that he was normal; a third that he was unable to plan; and a third that he was unable to feel pain, pleasure or fear. As in the first experiment, participants rated how unnerved they were by the man on a five-point scale.

Those who were told the man was normal, or was incapable of planning, gave scores that averaged 1.8 and 1.9 respectively. Those told he could not feel pain, pleasure or fear were much more unnerved. They gave average scores of 3.0.

Dr Gray and Dr Wegner believe their findings argue that a big part of the uncanny-valley effect stems from expectations not being met. Robots are not expected to have feelings and when such feelings are found, it seems somehow wrong. Humans, by contrast, are expected to have feelings—and when such feelings are not found, the effect is equally frightening. Their conclusions will perhaps give pause to those who see the ultimate robot as something which physically resembles a human being.