

The uncanny valley as fringe experience

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The uncanny is one of the most peculiar experiences for which we have a name. It is a striking example of how complex our phenomenology can be, and at the same time how the investigation of our conscious states can go far beyond introspection. MacDorman and Entezari (2015) have shown that the uncanny is amenable to experimental techniques sensitive enough to isolate a number of individual differences. And yet we must remember that the phenomenon under investigation is an experience, and the ultimate test of any theory of the uncanny is how well it can account for the peculiarities of uncanny phenomenology.

The implications of MacDorman and Entezari's work are wide ranging, and I will focus here on only one of the fundamental questions it brings to the fore: How, as precisely as possible, can we characterize the *feeling* that something is uncanny? Some aspects of the experience are straightforward: many languages have names for it; people agree that its emotional character is disturbing; and they generally agree about the kinds of stimuli that elicit it.

But things become far less straightforward from this point on. The experience of the uncanny involves a strong but ill-defined sense that something sinister or strange or "other" is lurking just beyond our ken. But what this underlying factor (or factors) might be *is left unspecified by the experience itself*. In consequence, theories of the uncanny enjoy a good deal of wiggle-room when they try to identify the mysterious "something" that is implied, but not presented, by the experience.

The distinction between the implied and the presented underlies MacDorman and Entezari's discussion of experimentally based theories, but it is also evident in more speculative theories that place the uncanny within a general account of the human condition.

Freud (1919/1953) took the disturbing quality in the uncanny to be "morbid anxiety" and contended that "the uncanny proceeds from something familiar which has been repressed" (p. 401). So, in a characteristic reversal, Freud

linked the mystery lurking in the uncanny to specific sexual threats and atavistic modes of thinking that were originally felt as both familiar and disturbing *before* repression blocked them from consciousness. In an uncanny experience, the feelings naturally elicited by these repressed contents return to consciousness in a generalized way, but the threatening contents themselves remain unconscious.

Heidegger's (1926/1962) treatment of the uncanny roughly parallels Freud's in two respects and diverges from it in a third. In *Being and Time*, I, 6, Heidegger also relates the aversive feeling of the uncanny to anxiety: "In anxiety one feels 'uncanny'" (p. 233). And for Heidegger, as for Freud, the source of this anxiety is, in most people most of the time, hidden from consciousness. But for Heidegger this hidden something is far more basic and extensive than Freud's candidate. And in this respect Heidegger emphasizes an important aspect of uncanny phenomenology that Freud only touches on – its "peculiar indefiniteness" (p. 233). For Heidegger, this indefinite aversive something is not the dim reflection of any *particular* set of contents outside of awareness. "That which anxiety is anxious about is Being-in-the-world itself" (p. 232). Anxiety threatens to disclose the emptiness of our "inauthentic" mode of existence, and for Heidegger this is the source of the indefinite quality that lurks in uncanny experience: We flee from the uncanny to avoid confronting the emptiness of our *entire* mode of inauthentic being as it operates in the socially defined world of human interactions and projects.

There are, then, many ways to approach the experience of the uncanny. But for those aiming to study its phenomenology scientifically, it would be hard to find a better starting point than William James (1890/1983). Although James (1895) only passingly mentions uncanny experience *per se*, his treatment of the 'fringe' of consciousness is especially well suited to deal with it. And this becomes even more evident in light of research since the Cognitive Revolution (Mangan, 2003). That is, at least, my contention.

I first worked out a cognitive extension of James' fringe phenomenology to clarify the nature of aesthetic experience, to relate it to nonconscious, parallel processing, and to identify some of the "bio-engineering" factors that have apparently shaped fringe phenomenology. Though the component experiences of the fringe work as an integrated system, its single most important characteristic is its ability to imply the existence and general character of information that is not, in any detail, represented in consciousness (Mangan, 1991). My project has expanded in various ways since (Mangan, 2014); and it now confronts an 'uncanny' realization. Some of the same components that condition typical cases of aesthetic experience also condition (with a different mix and intensity profile) uncanny experience. In some ways the uncanny is a distorted version of the aesthetic.

Fringe experience involves a fundamental paradox: It is crucial for any complex cognitive activity in consciousness – and yet it is usually inconspicuous. Fringe experiences have no discernable sensory content, resist introspective access, and merge with the sensory contents of consciousness to form an experiential Gestalt that is dominated by its sensory components. I have tried to explain *why* our phenomenology would have these characteristics by analyzing the fringe as a biological adaption that works to finesse consciousness' very limited ability, at any given moment, to articulate experience (Mangan, 1991, 1993, 2003). But for purposes of this commentary I will concentrate on descriptive aspects of the fringe as James and I understand them.

Normally fringe experiences evade direct introspective access. They are elusive and cannot be grasped in the focus of attention; in other words, we cannot bring them into what James called the “nucleus” of consciousness. To attempt to inspect a fringe experience via the nucleus is like “seizing a spinning top to catch its motion, or trying to turn up the gas quickly enough to see how the darkness looks” (James, 1890/1983, p. 244).

Nevertheless James had many indirect ways of establishing the existence of the fringe. When we feel a name is on “the tip of our tongue,” for instance, the sensory component that normally would occupy the nucleus – the actual sound of the word – is absent. But consciousness is hardly empty. It still contains fringe experience: “There is a gap therein, but no mere gap. A sort of a wraith of the name is in it... making us at moments tingle with a sense of closeness, and then letting us sink back without the longed for term. If the wrong names are proposed to us, this singularly definite gap acts immediately to negate them” (p. 251). This common experience has many implications, but two are especially germane: (1) The fringe contains a feeling of imminence – that something with a definite sensory content is *about* to enter consciousness, even when it does not. (2) The fringe contains an evaluative polarity: We experience ‘wrongness’ when the word does not fit its context, and rightness when it does; and both experiences can vary in intensity.

On James' account, the fringe, not the nucleus, is the repository of meaning in consciousness. “Our sense of meaning... pertains to the ‘fringe’ of the subjective state.... The image per se, the nucleus, is functionally the least important part of the thought” (James, 1890/1983, p. 472). I would tentatively divide the fringe contents that bestow meaning into three categories. The first (which James did not consider) includes expressive or physiognomic qualities such as sorrowfulness, joyfulness, and threateningness. The various shades of expressive qualities are almost without number, and they generally change quickly as the sensory contents of the nucleus change. Then there are what James called “feelings of relation,” and these have the vague phenomenology of all fringe

experiences: “knowledge about a thing is knowledge of its relations.... Of most of its relations we are only aware in the penumbral nascent way of a ‘fringe’ of inarticulate affinities” (p. 253).

Finally, a small subset of feelings of relation probably belongs in a separate category. These are the most fundamental and abiding experiences in the fringe, notably the familiar/novel and right/wrong polarities. Normally the contents of consciousness in a well-known environment feel both familiar and right. These are distinct experiences. When Archimedes discovered specific gravity, the principle was as profoundly new as it was profoundly right. The feeling of rightness was so intense that, as the story goes, he ran through the streets of Syracuse in ecstasy shouting “Eureka! Eureka!” However, opposing sides of the same polarity are not mutually exclusive. During *déjà vu*, for example, we experience novelty and familiarity. Our phenomenology is not bound by logical consistency.

We can now apply fringe analysis to the uncanny. I will distinguish the biological from the cognitive uncanny, but in both cases the fringe experience simultaneously combines familiarity with some degree of wrongness. In the biological uncanny, the nucleus has an organic, especially human, content, and beyond familiarity and wrongness, the fringe also incorporates the expressive qualities of disgust and/or threat. Recall that Freud noted (as have many others) that the uncanny occurs in an environment that is generally familiar. And, of course, in MacDorman and Entezari’s experiments, maximum uncanniness invests faces that are *approaching* human. But a conflicting experience of wrongness is mixed in with the more specific locus of discomfort, a strong but vague sense of threat, and in many cases also of disgust. In real life this peculiar mix of fringe components is quite rare, and habituation has had little chance to reduce the impact of the experience. (I wonder to what degree the habituation of uncanny experience follows, or diverges from, the habituation of other types of experience.)

But what, exactly, is the content that we *consciously* encounter in an uncanny experience? The sensory nucleus typically discloses very little; it is something like a macabre tip-of-the-tongue experience. Consider, in contrast, a case where the nucleus *does* contain clear, sensory evidence that something in an otherwise familiar environment is wrong and threatening: At night, on a familiar street, someone jumps out of the shadows and points a gun at your head. However frightening, I doubt people would call the resulting experience uncanny. In this case the nucleus does clearly indicate the reason for the fear. But in the uncanny, although we can sometimes nominate a content in the nucleus as the cause of the experience, the intensity of the experience will typically surpass that content’s rational appraisal. We are often *surprised* that a given content can arouse such a strong and odd experience. Why would adding a millimeter or two to a person’s incisors, or

changing slightly how the eyes are rendered, radically shift the experiential Gestalt (MacDorman, Green, Ho, & Koch, 2009)? And at times, even when the uncanny experience is intense, we are subjectively unable to specify *any* sensory content as the apparent cause.

This phenomenological indefiniteness (crucial for Heidegger) gives us further reason to locate uncanny experience in the fringe. When a fringe experience is sufficiently intense, be it positive or negative, it is no longer inconspicuous, but its presence in consciousness will still seem mysterious: Something without sensory qualities has entered consciousness, and the attempt to inspect it in focal attention will fail. When rightness dominates the experience, the other sensory and fringe components will perforce feel integrated and meaningful; and the more intense the experience of rightness, the more unified and meaningful the conscious contents will feel. This phenomenology is conspicuous in aesthetic experience and, when especially intense, some types of mystical experience. In both cases, people typically report that their experience was ineffable, but nevertheless insist that it was a *positive* disclosure of great meaningfulness (Mangan, 2014).

Roughly speaking, the uncanny constitutes a *negative* ineffable disclosure. The fringe signals consciousness that the environment is both familiar and yet, in some unspecified way, wrong. Depending on the mix of expressive qualities, particularly in a biological context, that something is felt to be threatening and/or disgusting. But, again, the sensory aspect of the nucleus does not adequately specify what would produce such a peculiar and aversive feeling. In cases when the sensory information *is* clear (say a badly deformed face), I suspect the fringe would load more heavily on disgust or revulsion, and the uncanny feeling would diminish.

This brings us to the cognitive uncanny as fringe experience, an issue that is not addressed in MacDorman and Entezari's treatment of the uncanny valley. The reader is invited to consult "uncanny" and its close synonyms "weird" and "eerie" in a few dictionaries of his or her choice. From this it should be evident that one fundamental aspect of *some* uncanny experiences is that they seem to involve contact with an entire, normally hidden 'realm' – one that is mysterious, otherworldly, disturbingly transcendent. It arouses superstitious fears that feel at best unfriendly and at worst demonic. But the details of this uncanny realm are not otherwise disclosed.

Here the fringe aspect of the experience is more intense, and it contains, simultaneously, feelings from both sides of the polarity that is the basis of all evaluative cognition in consciousness. In this case, a strong feeling of rightness (a sense of integrated order) is conjoined with at least a tincture of wrongness (something in this order is unnatural, aversive). The experience parallels the simultaneous conjunction of novelty and familiarity in *déjà vu*.

With or without a biological content in the nucleus, the uncanny constitutes a paradigmatic case of imminence as a fringe characteristic. The experience of the uncanny implies more than it discloses; it indicates in a vague and general way the existence of information that is not, in any detail, in consciousness.

Both cases of uncanny experience derive from fringe phenomenology, and both seem to involve a rare and complex mix of familiarity, wrongness, and a feeling of threat. Disgust is also a significant component in the biological uncanny. However, in the cognitive uncanny, disgust is less pronounced, if it is there at all, and the fringe feeling of an imminent negative ineffable disclosure intensifies. The cognitive uncanny is 'cognitive' in part because it seems to suggest the existence of an otherwise ill-defined reality that is capable of *orchestrating order*, albeit malevolent.

References

- Freud, S. (1919/1953). *The Uncanny*. (A. Strachey, Trans.) Collected Paper, V. IV. London: The Hogarth Press.
- Heidegger, M. (1926/1962). *Being and time*. (J. Macquarrie & E. Robinson, Trans.) New York: Harper & Row.
- James, W. (1890/1983). *The principles of psychology*. Cambridge: Harvard University Press.
- James, W. (1895). Is life worth living? *International Journal of Ethics*, 6(1), 1–24.
DOI: 10.1086/205378
- MacDorman, K.F., Green, R.D., Ho, C.-C., & Koch, C. (2009). Too real for comfort: Uncanny responses to computer generated faces. *Computers in Human Behavior*, 25(3), 695–710.
DOI: 10.1016/j.chb.2008.12.026
- Mangan, B. (1991). *Meaning and the structure of consciousness*. Doctoral Dissertation, University of California, Berkeley.
- Mangan, B. (1993). Taking phenomenology seriously: The “fringe” and its implications for cognitive research. *Consciousness and cognition*, 2(2), 89–108. DOI: 10.1006/ccog.1993.1008
- Mangan, B. (2003). The conscious ‘fringe’: Bringing William James up to date. In *Essential sources in the scientific study of consciousness*. Cambridge: The MIT Press.
- Mangan, B. (2014). Meaning, God, volition and art: How the fringe and rightness bring it all together. *Journal of Consciousness Studies*, 22(3–4), 154–176.

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Biographical note

Bruce Mangan, Ph.D. received an interdisciplinary Ph.D. in Cognitive Science and Aesthetics from the University of California, Berkeley, in 1991. He has taught there since in various capacities, inaugurating the Scientific Approaches to Consciousness course offered jointly by the Psychology and Cognitive Science departments. Mangan is one of the founding members of the Association for the Scientific Study of Consciousness. His research investigates the interface mechanisms that weld conscious and non-conscious processes into a single cognitive system. To this end he has developed a phenomenological method (Convergent Phenomenology) expressly designed to integrate first and third person evidence. William James practiced a nascent version of this approach.