

Hypersensitive agency detection device

General questions

Is the tendency to perceive agency where there is none a prerequisite for religious thought? Does it help the acquisition or transmission of religious concepts?

Theory

Under certain conditions, humans commonly interpret two-dimensional, moving geometric shapes as having the properties of causality and animacy. This effect has been demonstrated with very simple visual displays that feature geometrical shapes devoid of any of the usual markers of agency, such as eyes or limbs, which suggests that movement that can be interpreted in non-inertial, goal-directed terms is sufficient to trigger these attributions. Perceptual causality and animacy have also been shown to emerge early in life. One interpretation of these phenomena is that the visual system is involved in recovering “the causal and social structure of the world by inferring properties such as causality and animacy” [1]. Barrett & Johnson [2] have shown that the perceived degree of control one has over the motion of the objects influences attributions of agency.

Anthropologist Stewart Guthrie [3] has observed that humans tend to interpret ambiguous stimuli as having been produced by agents. Guthrie suggests that this perceptual bias is adaptive, in that it makes humans more wary in their interactions with the environment and therefore reduces the risk of unexpected encounters with predatory others. Guthrie places this finding in the context of a broader theory of religion, in which “God or gods consist in seeing the world as humanlike.”

Justin Barrett [4, 5] has tried to specify what the cognitive mechanisms that produce the perceptual bias might look like. Barrett has coined the term HADD (hypersensitive (in some earlier publications *hyperactive*) agency detection device), which he characterizes in the following way: “When HADD perceives an object violating the intuitive assumptions for the movement of ordinary physical objects (such as moving on non-inertial paths, changing direction inexplicably, or launching itself from a standstill) and the object seems to be moving in a goal-directed manner, HADD detects agency” [5]. HADD could contribute to the *formation* of religious concepts by making people identify ambiguous objects as intentional agents (e.g., ghosts or spirits), or by causing objects correctly identified as such to be perceived as invested with agency (e.g., seeing a thunderstorm as manifestation of a deity’s will). In addition, HADD could serve to *reinforce* religious concepts. For example, people who experience salient but surprising, unexpected, or extraordinary events (e.g., surviving a shipwreck or a serious illness) often report the presence of non-natural agency in their accounts of those events. Furthermore, certain features of objects and living things are often reinterpreted in a teleological or functional sense – that is, purposefulness that cannot be attributed to natural agents may be attributed to non-natural agents; in this sense the features in question appear to be understood as ‘traces’ of non-natural agency.

Bering’s ‘Existential theory of mind’ (EToM) [6], which he describes as a “generic explanatory system that allows individuals to perceive meaning in certain life events,” could be responsible at least for the perception of agency in events and traces that Barrett believes to derive from HADD. Bering speculates that the factors that cause individuals with autism to lack the capacity to mentalize may also affect their EToM; this might result in their having qualitatively different religious experiences (and perhaps concepts). However, no research has so far been done on the psychological underpinnings of the EToM.

Evidence

The many psychological studies dealing with the attribution of causality and animacy to visual displays are reviewed by Scholl & Tremoulet [1]. Barrett & Johnson's [2] experiment consisted in having participants place ball bearings in divots of a board while providing a running commentary. At a specified time, two electromagnets under the board were either surreptitiously activated by the experimenter or by the participants themselves. This caused the metallic objects to move across the board and collide with each other. Participants who lacked control over the movement of the ball bearings were significantly more likely to include attributions of agency in their descriptions of the objects' motion.

There is, however, virtually no available experimental (or non-anecdotal) evidence for the role of HADD in the acquisition and maintenance of religious concepts, or for the existence of dispositional or situational factors that may affect HADD's deployment. This is a topic in CSR that is in particularly urgent need of empirical support.

Outstanding issues

- Do HADD experiences facilitate the transmission of religious agent concepts?
- Are religious agents (such as spirits and ghosts) disproportionately regarded as frequenting locations that have features likely to elevate agency detection?
- Are the three classes of agency detection (anthropomorphic forms, events, and traces) all attributable to the workings of the same mechanism? Are all equally relevant for encouraging the generation and transmission of religious concepts?
- What factors affect the likelihood that HADD will be activated? The probability of HADD activation is likely to depend on characteristics of the eliciting stimulus and of its environment (e.g., clarity, background noise, etc), but also to contextual factors such as the precariousness of your situation. For example, feeling vulnerable when at night or alone is likely to result in easier HADD activation.
- Does difference in performance on simple visual display experiments predict performance in tasks that involve other HADD manifestations?
- Are ambiguous experiences in which one detects agency that does not have an immediate or definite natural attribution more likely to encourage MCI agent concepts than ordinary agent concepts?

See also

Teleo-functional reasoning (coming soon)

References

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4. Barrett, J.L., *Exploring the natural foundations of religion*. Trends in Cognitive Sciences, 2000. **4**: p. 29-34.
5. Barrett, J.L., *Finding agents everywhere*, in *Why would anyone believe in God?* 2004, AltaMira Press: Walnut Creek, CA.
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