



COMMENTARY

Response to Peter Brugger's Commentary

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SUBMITTED August 3, 2023

ACCEPTED March 1, 2024

PUBLISHED March 31, 2024

<https://doi.org/10.31275/20243127>

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Peter Brugger and we agree on several important points. We agree that most people believe in scopaesthesia based on personal experience. We agree about the importance of gaze detection for the belief in an extramission component of visual perception. We agree about the theoretical importance of the directionality of apparent scopaesthesia. We appreciate the clever research by Guterstam and his colleagues, which shows how people unconsciously attribute an outward movement of force to the gaze, implying the extramission of an invisible flow from the eyes towards the object of attention. As Guterstam et al. (2019) pointed out, even people who explicitly disbelieve in extramission implicitly take extramission for granted when tested, not knowing they are doing so; they suggest that this response and the brain mechanisms underlying it have deep evolutionary roots, probably connected with the importance of gaze detection in social contexts.

Our fundamental disagreement is about the reality of scopasesthesia itself. For Brugger, scopaesthesia simply does not exist, and to believe that it does is irrational. It is a 'folk psychological belief'. The only interesting questions are about the brain mechanisms that underlie this false belief.

For many years, Brugger has claimed that psychic phenomena are impossible. As he mentions himself, he is on the scientific advisory board of the principal skeptical organization in Germany, GWUP (Gesellschaft zur wissenschaftlichen Untersuchung von Parawissenschaften, or the Society for the Scientific Investigation of Pseudosciences). In his Commentary, he referred to a paper he published in 2003 with his colleague Kirsten Taylor in which they argued that positive results in parapsychological experiments occurred not because these phenomena are real, but because there was an implicit learning of pseudorandom sequences by subjects who were taking part in a long series of trials and given trial-by-trial feedback. They hypothesized that subjects recognized repetitive patterns in the randomized instructions because they were not properly randomized: through trial-by-trial feedback they could pick up repeated patterns unconsciously. This unconscious awareness of patterns in the randomness, or pseudorandomness, enabled them to give correct answers at above-chance levels (Brugger & Taylor, 2003).

Brugger and Taylor went on to speculate that the right cerebral hemisphere plays a central role in "cognitive mechanisms underlying the formation and maintenance of paranormal beliefs" (Brugger & Taylor, 2003, p. 221). They entitled their paper 'ESP', and suggested that this acronym for Extra-Sensory Perception should be reinterpreted to mean 'Effect of Subjective Probability'. They regarded this new definition as an extension of the standard skeptical quip that ESP means 'Error Some Place'. They proposed that henceforth "parapsychology should abandon the traditional causal view of ESP as extrasensory perception; it should be recognized that the object under study is individual differences in guessing behaviour." By giving up the idea that ESP is a real phenomenon and by discarding all the evidence for anything except subjective cognitive biases, "a new parapsychology could ultimately advance to a respectable discipline within the



behavioural sciences" (p. 222).

In this spirit, Brugger (2024) tries to brush aside the experimental results in dozens of papers on scopaesthesia in peer-reviewed journals on the grounds that subjects implicitly learned patterns in pseudorandomized sequences of "looking" and "not-looking trials" because, he assumes, they were given trial-by-trial feedback. To justify this sweeping condemnation, he cited just one study, a preliminary experiment that one of us (R.S.) carried out to test for directional scopaesthesia in randomized trials (Sheldrake, 2003). He stated, "Success in such a paradigm depends on the trial-by-trial feedback provided in long series of pseudorandomized sequences" (p. 169) and used this example to illustrate the "embarrassingly poor methodological standards" (p. 169) of the whole field of research. In fact, there was no trial-by-trial feedback in the study he cited, and the sequences were not pseudorandom. He made up these experimental details to fit his standard Error Some Place argument; he invented the "embarrassingly poor" methodology himself. Having erected a straw man, he then knocked it down in an attempt to discredit all research on scopaesthesia. He simply ignores the many studies in which randomizations were performed by standard techniques. He ignores the positive and statistically significant hit rates in studies in which subjects were not given feedback (Sheldrake, 2000, 2001, 2008), where there could have been no implicit learning of sequences and hence no Effect of Subjective Probability. He also ignores the positive and statistically significant results in randomized tests without feedback using CCTV (Schmidt et al., 2004).

Brugger is not alone in his contempt for evidence that does not agree with his worldview. Several leading skeptics explicitly argue that the data are irrelevant because psychic phenomena are impossible on logical grounds. They do not happen because they cannot happen. In his book *Rationality*, Steven Pinker (2021) freely admitted that he pre-judges the evidence for all kinds of ESP, assigning them an infinitesimal prior probability in the language of Bayesian statistics. Likewise, in a paper entitled "Searching for the impossible: Parapsychology's elusive quest" Arthur Reber and James Alcock, a leader in the organized skeptical movement, asserted that "Claims made by parapsychologists cannot be true. The effects reported can have no ontological status; the data have no existential value" (Reber & Alcock, 2019, p. 391). Why waste time looking at the empirical evidence if you know in advance that it is worthless?

The usual reason for committed skeptics' denial of psychic phenomena is their belief in the materialist or physicalist philosophy, according to which minds are what brains do; minds are confined to the insides of

heads (Sheldrake, 2020). Hence phenomena like telepathy and scopaesthesia are impossible because they could only happen if minds or mental influences extended beyond brains, which they do not. To believe that they do is to succumb to superstitious, irrational, and magical thinking.

Brugger, Guterstam, and other scopaesthesia skeptics regard the widespread *belief* in visual extramission and in scopaesthesia as a valid topic for scientific study because they assume it arises through brain mechanisms that have evolved for the detection of meaningful patterns and the direction of gazes. These mechanisms then give rise to illusions about visual extramission. However, an evolutionary argument would make more sense if visual extramission and scopaesthesia are real. For example, an ability to detect the stare of a hidden predator may well be of survival value and favored by natural selection, whereas an illusion of stare detection would be useless.

Brugger, like many fellow skeptics, assumes that most people misinterpret their own experiences because they are unaware of their in-built cognitive biases. From this point of view, all the examples we quoted in our paper are fundamental misunderstandings. Most people are wrong about their own experience. However, a small elite, namely those who are enlightened by the materialist worldview, have privileged access to truth. They can see through the superstitions that cloud the minds of scientifically uneducated people, and even of a few misguided researchers such as ourselves. They believe they have escaped from the tyranny of the right brain, cognitive mechanisms underlying the formation and maintenance of paranormal beliefs. They have been liberated by Science and Reason, which are presumably embedded in cognitive mechanisms in the left hemisphere.

In a nutshell, the fundamental question Brugger's (2024) Commentary raises is this: *Is it more scientific to adhere to the materialist belief system and deny all evidence that goes against it, or to explore what we do not understand?*

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