Chapter 2
Embodiment and Phenomenal Consciousness

ABSTRACT

Can the imaginary brains described in Chapter 1 have only representations of perceived patterns, objects, and events? Can hierarchical structures of neurons also represent feelings, beliefs, emotions, and other higher mental states? Creating feelings requires giving emotional perceptions, memories, plans, beliefs, and intentions. How can this be achieved? How are perceived objects and events using their significance for the fate of the conscious system? Do they meet the various needs of the system? In this chapter we show that to achieve this goal, to feel qualia and to create phenomenal awareness, it is necessary to embody the mind. Mental states, such as thoughts and desires, contain intentional content that can be described by referring to something that we expect or believe. Another category are sensory feelings that do not contain intentional content but instead have different qualitative properties like perceptions, impressions, and sensations. The authors indicate four main domains of cooperation between the body and the brain, so that the mind generated in the system has phenomenal consciousness. These domains are 1) The homeostatic system. The body or housing may contain sensors informing the brain about the internal conditions of the body. The signals from these sensors can complement the information coming from the external senses. 2) The motor system. The housing and body, together with the motor system, allow an individual to manipulate objects in the environment and its own body in the environment. The effects of these manipulations can broaden the experience and allow for their evaluation. 3) Participatory analysis. The body or housing can be used to predict, analyze, and plan activities by making calculations through a physical process. 4) The global states of the organism. Internal power supply parameters, information-processing speed, dynamics of operation, and sensitivity thresholds for internal and external sensors can affect performance, the results of evaluation of sensations, and the shape of neural representations. This assumption makes it possible to explain how the imaginary mind can feel subjective impressions, the qualia that are the basis of phenomenal consciousness. The bodily reactions to the sensory stimuli reaching the brain can give value to individual feelings, and emotions. Feeling hardness or smoothness, assessing the attractiveness of smells, judging the importance of sounds, and evaluating the favor of the environment based on images all go beyond the direct response of the senses. The entire brain is involved in the creation of a conscious mind, along with sensory processing, control of movements, memories, predictions, and all other brain structures. This is an emergent phe-

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nomenon that is not reflected in any part of the brain's apparatus. In this chapter, the authors explain to what extent we can be aware of our feelings, how far we can understand the world around us and our place in it, how we can consciously direct our thoughts, and how we can focus attention on something.

EMBODIMENT

The previous chapter made us realize how far we are from the sought-after model of a motivated emotional mind (MEM). The layered structures of the hierarchical associative memory recording the neural representations of perceptions, sensations, and images of the environment, described in the previous chapter, do not resemble natural brains that are known to us, neither animal nor human. They lack emotions and feelings; they also lack the motivation to act and many higher mental functions that we associate with the features of conscious beings. Creating feelings requires giving emotional perceptions, memories, plans, beliefs, and intentions. How can this be achieved? How are perceived objects and events given values referring to their significance for the fate of the conscious system? Are these events favorable or unfavorable? Does the system perceive them as nice and pleasant or rather painful and threatening? Do they meet the various needs of the system, both material and mental?

To answer the question formulated at the end of the previous chapter and those asked above, let us more systematically distinguish mental states and events. There are two broad categories of mental property. Mental states, such as thoughts and desires, contain content that can be described by referring to something that we perceive or expect, that we believe. The central axis of this content is "something." For example, you might have the thought of wanting to meet a friend. These states are said to have intentional properties or intentionality. They are characterized by the conceptual content of sentences describing the substance of the event. Concepts and ideas arise as a result of the process of categorization and generalization of the object of sensual perception (Cutter and Tye 2011).

The second category concerns sensory feelings that do not contain intentional content but instead have different qualitative properties. Qualitative features of objects are perceived as perceptions, impressions, and sensations (Kripke 1980). Some philosophers distinguish affective, emotional values that shape emotions in the latter group of perceptions (Craig 2003) or indicate the possibility of composition formation and/or their combination (A. Clark 2005).

As we have already indicated, operations on intentional states, which correspond to cognitive and intentional consciousness, do not cause us any trouble on the basis of the presented model. Thinking is to a large degree remembering. It can occur by stimulating semblions. It can occur through functional synaptic or up-down coupling (from the most general concepts and ideas) or spontaneously. Then the whole semblion is excited thanks to the up-down feedback. The path of creating a neural representation from the bottom up can be very precise, because in the lower layers of the network, close to the sensory cells, we have a huge amount of information that is gradually compressed in the higher layers. Restoring memory states by up-down stimulation requires decompression of information and excitation of a large number of memory cells in the lower layers. Images may blur. Their individual components can be confused and replaced with quite different scenes. Therefore, this reproduction may be imprecise. Abstract states that are related and logically analyzed, as well as elementary features fished out by the senses, are reproducing.

The states characterized by sentences correspond to the stimulation of high layers of semblions containing information describing objects of a general nature or of a high degree of complexity, using abstract concepts in symbolic language. These descriptions undergo logical analysis and can be defined