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Consciousness and thinking: neurobiological mechanisms

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The paper deals with the neurobiological mechanisms of consciousness and thinking. It is shown that the processes of self-identification in the cerebral cortex can generate explicit representations of external and internal events. Explicit symbolic representations of sensory data can generate sensory awareness. Explicit symbolic representations of the results of operational activity of one's brain can generate thought. While visual consciousness consists in seeing external events, thinking consists in seeing the results of the operational activity of one's brain ("internal look"). The explicit symbolic representations of one's internal data allows one to operate with them as with distinct objects. The voluntary control of the data is made possible by means of the apparatus of internal sensory-motor replication. Examples of the voluntary operations with words, symbols, or images can be found in the verbal and visual replication. The replication procedure ensures the consistency and continuity of one's reasoning process, its coherence and unambiguity. The proposed theory provides an internally consistent explanation for a wide variety of the phenomena of conscious activity of the brain, ranging from the awareness and thought to imagination, reflection, hypnosis, and meditation, demonstrating thereby the unity of the seemingly completely unrelated mental phenomena and the universality of the neurobiological mechanisms of their formation.

Keywords: sensory awareness, thought, conscious perception, discursive thinking, imagination, intuition, hypnosis, meditation.