

A Self-Contradictory Concept Presents a Problem to Cognitive Science

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Self-contradictions are usually considered to be meaningless. A statement of the form "A is not A" is hard to understand. A concept like "X which is not X" does not seem to make sense. People try not to be self-contradictory in what they say and do, since behavioral consistency is a basic condition for social life. If their behavior were self-contradictory, they would not be accepted by the society. Scientists avoid making self-contradictory arguments, since such arguments have no scientific value. In mathematics self-contradictory propositions should never be used, since they will never lead to a solution of a problem.

Can the mind represent self-contradictions? In cognitive science paradigms in which the mind is viewed as an analogue of a computer, a mental representation of a self-contradiction is hard to imagine (note 1). "X which is not X" may be represented syntactically but it is nonsense semantically. In a computer the most primitive symbols are binary, so they may be coded as 0 and 1 (note 2). Since 1 must be represented as 1 and 0 as 0 in such a system it is impossible to represent something like "1 which is not 1" or "0 which is not 0" by means of the binary codes. If 1 is equated with 0 and 0 with 1, the symbolic system will get confused and the computation will collapse. Though

we still don't know what the primitive codes are in the case of the human mind, it is difficult to imagine how a self-contradiction could be represented in the mind as long as the mind is seen from the computational point of view.

What if someone were to present a self-contradictory concept that is meaningful? An example can be found in a short story by Atsushi Nakajima titled 'Meijin-den' (note 3). The story is about a man who wanted to become a master of yumi (Chinese style archery). The story may be summarized as follows.

There was a man named Kisho in China. He had a wish to become a master of yumi. He became a disciple of a renowned master. The first thing Kisho had to learn was to stop blinking. After two years of training he became able to stop blinking even while he was asleep. The second thing he had to do was to train his sight so that he could perceive small things very well. For three years he stared constantly at a louse he had hung in his window. One day he found that the louse looked as large as a horse. Then the master started to teach Kisho the secret techniques of the art of yumi. Soon he became as good at yumi as his master. But Kisho was not satisfied. He went to see a grand master of yumi. The grand master watched Kisho shoot birds and said that Kisho was good at shooting, but that he had not yet learned "shooting of not shooting". Then the grand master showed his own shooting. Kisho was astonished to see him shooting birds without using a bow (yumi) and arrow or any other physical means. Kisho stayed with him for nine years. When he returned to his town, everybody welcomed him as a true master of yumi. But to the townspeople's surprise he did not shoot with a yumi at all. When he was asked why he did not shoot any more, his answer was that the ultimate essence of doing would be found in not doing,

that of saying in not saying, and that of shooting in not shooting. Kisho died forty years after he returned home. One or two years before his death, people found that Kisho had forgotten yumi completely, even its name and usage. For a while after that artists hid their brushes, musicians cut the strings of their instruments and artisans thought it shameful to touch their tools.

This story offers a self-contradiction, represented by the expression "shooting of not shooting". In the story the grand master first used the notion of "shooting of not shooting" to mean something like shooting with nonphysical power. What Kisho learned with him, however, was quite simply not to shoot, as he said that the ultimate essence of shooting was to be found in not shooting. Even his forgetting of yumi was viewed by people as an eventual outcome of his learning. People did not think that Kisho's forgetting was just a case of lost memory, void of experience. Rather, they thought that his forgetting was full of experience and was the highest achievement of the most profound essence of learning. "Shooting of not shooting" eventually became a self-contradiction.

Self-contradictory concepts may be divided into two categories, one being that of superficial self-contradictions and the other being that of essential self-contradictions. The superficial self-contradictions are self-contradictions that may be interpreted in a logically consistent manner. The essential self-contradictions are self-contradictions that are impossible to comprehend logically. If "shooting of not shooting" only meant shooting with nonphysical power, the concept would present just a superficial self-contradiction. "Shooting" from a nonphysical point of view could be at the same time "not shooting" from a physical point of view. However, "shooting of not shooting" must be taken as an essential self-contradiction. It should not be analyzed logically, because the self-contradiction itself is the essence of Kisho's expe-

rience. "Shooting" became "not shooting" in every sense.

If we interpret the concept of "shooting of not shooting" as a meaningful, essential self-contradiction, it presents a problem for the computational cognitive science. Can a logical symbolic system represent an illogical, self-contradictory concept? Perhaps a very complex computational system can, or could, do so. However, the answer to this question will depend on further research on self-contradictions.

Notes

Note 1: Computationalism is only one of several approaches to cognition.

There are approaches to the study of mind other than computationalism.

Note 2: Primitive codes are binary in virtually all existing computers we have now.

Note 3: Atsushi Nakajima (1942), *Meijin-den* (A story of a master) 中島敦、「名人伝」.

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