

Heinz von Foerster Lecture '13

Stuart A. Umpleby

Second Order Cybernetics Then and Now

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**Hörsaal 31
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When Heinz von Foerster coined the term “second order cybernetics,” his goal was to include the observer in the domain of science. This was a fundamental change in the conception of science, and Heinz encountered stiff opposition. One consequence of including the observer would be to extend cybernetics (and science) into the domain of ethics. Scientists had previously sought to be objective. Including the observer made science a subjective enterprise. This suggestion was strongly resisted by Heinz’s colleagues in the UIUC College of Engineering and elsewhere in the U.S. academic community.

Since Heinz retired and moved to California, the people involved in cybernetics in the U.S. have been mostly social scientists. Rather than people with backgrounds in neurophysiology, psychology, mathematics and philosophy, those interested in cybernetics tended to be therapists, management scientists, sociologists and people concerned with design. Including the observer in science led to interest in scientific theories as part of social systems. Several conceptions of second order science have now been formulated. If we use the correspondence principle (i.e., every new theory should reduce to the old theory to which it corresponds for those cases in which the old theory is known to hold), we can say that two dimensions have been added to the conception of science: a) amount of attention paid to the observer, and b) the amount of effect of a theory on the phenomenon described.

Stuart Umpleby is a professor of management at the George Washington University in Washington, DC. He studied with Heinz von Foerster and Ross Ashby at the University of Illinois in Urbana-Champaign. He is a past president of the American Society for Cybernetics.

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