

## **The Notions of Cybernetics**

### **Humberto Maturana, 1988**

The notion of control entails the implicit supposition that the observer either can specify what happens in a system, or can make a complete model of it, so that his or her actions determine what happens in it. Neither of these phenomena happen. Structural determinism precludes both, the first because there are no instructive interactions between structure-determined systems, and the second because cognition does not operate with representations of an independent world. The notion of understanding is different; it refers only to the reflections of an observer with respect to the flow of his or her interactions in a medium as he or she operates in a discourse that reflects the operational coherences of his or her coordination of actions in language.

Thus, in the case of the steering of a ship, the skipper can only trigger structural changes in the ship through his or her interactions with a wheel that moves the rudder without specifying the course that this will follow. The course of the ship arises as a result of its recurrent encounter with the waves and the wind, in a process known as drift. As the shape of the ship changes through its interactions with the skipper at the wheel, the course of its drift will change because its manner of encounter with the waves and the wind will change. As the skipper acts from his or her metadomain of discourse as an observer, in what we may call his or her understanding of the situation, the shape of the ship (the position of the rudder) will change through the interactions of the skipper with the wheel in a manner contingent to his or her understanding. In our daily discourse, we say that the skipper controls the course of the ship through his or her manipulation of the position of the rudder as if he or she were determining the course of the ship, but the phenomenon that takes place is not that. What the skipper does is to make his or her understanding part of the domain of interactions of the ship, thus making the drift of the ship contingent to it.

The phenomenon of control exists only in the discourse of the observer as a metaphor of what the skipper does, not as a feature of how the course of the ship is constituted as the ship moves under the skipper.

Due to this then, the task of the skipper in a ship is one of understanding. Indeed, the whole training and preparation of a person who will become skipper is oriented towards expansion of his or her domain of experiences in a manner that makes such understanding possible in him or her when in the ship. Accordingly, I propose to change the meaning of the word *cybernetics*. I want it to mean "the science and art of understanding." If we were to do this, our Society for Cybernetics would necessarily embrace all the avenues of concern and reflections that have to do with the understanding of systems. That such expansion is taking place is apparent in the coming into our Society of people concerned with family therapy, sociology, psychology, etc.