Signals and signs

June 29, 2019

Signals and signs are two very different things. A signal is almost an order - it must be obeyed: if you come to a red light on the road, for example, just keep quiet. This applies to everyone, buses, passenger cars and motorcycles. Here is nothing to discuss, just keep quiet, even pedestrians do well to wait until it turns green. Signs are completely different. They must be understood (ie interpreted) before they work. To illustrate the organism's use of characters, I allow myself to reuse a piece from my thesis.

When the body is stressed and orders the adrenal gland to secrete epinephrine (adrenaline), at the same time, very different things will occur in different tissues. In the lungs, the muscles will relax, in the liver there will be a mobilization of free sugar units from the carbohydrate depots (glycogen), in the fat tissues there will start a breakdown of the fat stores, and in the intestinal tract the peristaltic activity will be subdued. One and the same molecule (sign) thus has widely different effects in different cells, exactly as when a conductor gives the chorus a sign and soprano, altar, tenors and basses put in with their own tone. When the same sign, epinephrine, can mean different things to cells that are otherwise genetically similar, it is because all cells of the adult organism are descended from embryonic cells, which at a given stage were determined to a particular cell destiny, which also has included a framework definition of their semiotic receptivity.

Whether we are talking about muscle cells, liver cells, fat cells or intestinal cells, the epinephrine molecule is always recognized by the

same so-called beta-2 adrenergic receptors, which via a mediator, a so-called G protein, activate the formation of the secondary signal carrier, cyclic cAMP (cAMP). Out in the tissues, cAMP has the general effect of activating a protein kinase, ie. an enzyme that can activate other enzymes by attaching phosphate groups to certain of their amino acids. And it is at this level that the cells' memory, as determined by the embryonic determination processes, interferes. The cells in the various tissues do not have the same 'protein profile' and where the cAMP activated protein kinase in liver cells causes an activation of the enzyme phosphorylase b kinase (whose activity then causes an activation of the enzyme phosphorylase b, which then catalyzes the cascade degradation of glycogen), then the same kinase in adipocytes activates the triglycerol lipase enzyme (and thereby a degradation of the fat stores of these cells). Instead of equipping the cells with a refined signal sensitivity, the organisms have chosen to incorporate an

ontogenetically channeled interpretation diversity, depending on the creation of a diversity of tissue 'subcultures', each with its own distinctive receptivity.

It is therefore important not to mix signs and signals. Here, the Peircean sign concept has proved useful.