Symmetrical Aspects in Information Science - On the Confusion between 'Entropy', 'Disorder' and 'Order'

Abstract

Symmetry considerations didn't determine decisive the controversial one around the foundation of information science. However they play an important role within the framework of model formation for determination of its basic terms (i.e. as symmetry relations in the sense of mathematical logic's):

- The so-called communication model shows two self-organising systems who exchange information in the form of signs (words, pictures, motion patterns) via a certain medium. Symmetry relation in this case is the medium who combines the two self-organising systems. But also the information passing the medium shows qualities of a symmetry relation. It is produced and sent by the one self-organising system and should be received and put into existing (cognitive) structures afterwards by the other one. This can come about only in that case that both self-organising systems contain mutual a priori knowledge concerning sent information at high measure (e.g. the language in that information was formulated, context knowledge for information etc.).
- A further model (I call it I-system model) describes the courses of processes in the information receiving and sending individual (self-organising system). Here symmetry relation is formed by self-organising system itself respectively by its cognitive structures as a information potential (built up and extended by incoming information on the one hand and informing its environment with knowledge entities on the other hand). Therefore, on both sides of relation there is information presented in a medium.

An old controversial in information science is represented by the two questions:

- Should information be considered as an organised structure whose diversity may get enlarged by an information process?

or

- May information be characterised as the (individual) variety to affect the own environment? In this second case an information process is interpreted as selection under these possibilities; information itself will be quantified as entropy, that is a measure of disorder.

I claim that this apparent contradiction can be removed by purposeful application of the described symmetry considerations.