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## Technical artefacts, a categorization of

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Enactive interfaces are technical artefacts. It is therefore useful to situate them with respect to a categorisation of technical artefacts in general, which can be divided into three main types.

The first type of artefact directly mediates the sensory-motor interaction between a human subject and the environment, by modifying the possible actions (e.g. a hammer) and/or by modifying the sensory feedback (e.g. a telescope). Such artefacts, tools and sensory instruments, can be considered as extensions of the body. They modify the sensorimotor contingencies [→ Sensorimotor contingency or dependency], and hence modify what the world is for the subjects in question.

A second type of artefact consists of deliberate modifications of the environment: roads, buildings, fields and so on. It is even more obvious that this second type of artefact also modifies the world that human beings live in.

Finally, there is a third sort of artefact that can be called semiotic artefacts. Here, the actions consist in emitting signals, and the sensory feedback is specifically geared to the reception of these signals. If the conditions that trigger the emission of a signal and the response of the receiver are appropriate, this leads to a co-ordination of actions [Maturana & Varela, 1987], and constitutes the basic form of communication, which exists already in animal world.

Concerning semiotic artefacts, the human inventions are: first of all, language itself [Vygotsky, 1986]; and then a whole series of clearly technical inventions, writing, printing; and in our era computers. It is important to note that the computers are not only semiotic

artefacts, but also sensori-motor devices. The computer comprises a certain repertoire of real actions (from punching cards in the early computers to mouse movements, joysticks, etc.) with, in return, an increasing range of sensory feedbacks (from reading printed output to visual patterns, sounds and so on); regularities are established between action and sensation in this case just as for the first type of artefacts.

This categorization can be useful for analytical purposes; but it is important to note that in practice, technical artefacts do not function in isolation from each other, but form technical *systems* with a synergy between these three types. For example, roads (type 2) go together with cars and lorries (type 1), their synergy being organized by maps and plans (type 3). A possible use of the term technology (techno-logos) is to designate the situation where there is linguistic communication about the design, fabrication and use of technical artefacts.

Finally, it must be noted that this categorization is neither exhaustive nor exclusive. In particular, it is interesting to compare it with the category of ergotic interfaces [→ Interface, ergotic].

### References

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Sensorimotor contingency or dependency