

Discussion paper on the paper "Conceptions are social Constructs - Towards a solid foundation of the FRISCO approach"

by H. v. Braun, W. Hesse, U. Andelfinger, H.-B. Kittlaus, and G. Scheschonk

Discussant: **Hannu Kangassalo**
University of Tampere, Finland
hk@cs.uta.fi

The authors analyse and evaluate the use of a (tetrahedron) variant of the semiotic triangle formed by adding an *actor* at its central position. They concentrate mainly on the notion of *conception* which it recognised to be problematic in many respects. They propose that the interpretation of the notion of conception should be revised. In general, I support their thoughts and lines of reasoning, but in some aspects I would like to see, that the thoughts the authors propose could be developed even further.

We have first to think about the situation in which the reader of the FRISCO report may be in trying to understand and apply the notions, which form a complicated network. The report suggests quite considerable changes in thinking of the user, i.e. the user is required to make several essential conceptual changes to his or her own thinking. That may be a difficult task, although it will be very important that these changes would be accomplished.

Epistemology is a branch of philosophy that studies knowledge. It concerns with the nature of knowledge, its possibility, scope, and general basis. It deals with a question on which grounds knowledge about the universe of discourse, concepts, rules, and facts is based, and which kind of justification we can have for that knowledge. In other words, it investigates the origin, structure, methods, and validity of knowledge¹.

It attempts to answer also the basic question: what distinguishes true or adequate knowledge from false or inadequate knowledge? Practically, this question translates into issues of scientific methodology; how can one develop theories or models that are better than competing theories or models?(see; Epistemology. Principia Cybernetica Web)

In information systems design we are interested in constructing models of the UoD. Following Heylinghen we could say that epistemology of information systems is a branch of theory that studies knowledge in information systems and information systems design process, especially questions what distinguishes adequate knowledge from inadequate knowledge in information systems and how can one develop theories or conceptual models that are better than competing theories or conceptual models? In other words, we are interested in principles of which kind of knowledge is needed and used in creating an

¹ Runes, D.D.,(Ed.) Dictionary of Philosophy. Littlefield, Adams & Co. Totowa, NJ, 1977.

adequate conceptual schema of the UoD, and how that knowledge should be synthesised.

In FRISCO report, the main epistemological approach is constructivism, about which there are several different branches. The most important branches are individual constructivism and social constructivism. Individual constructivism assumes that an individual attempts to reach coherence among the different pieces of knowledge. Constructions that are inconsistent with the bulk of other knowledge that the individual has will tend to be rejected. Constructions that succeed in integrating previously incoherent pieces of knowledge will be maintained. Social constructivism, sees consensus between different subjects as the ultimate criterion to judge knowledge. 'Truth' or 'reality' will be accorded only to those constructions on which most people of a social group agree. (see e.g. Heylinghen in Principia Cybernetica²

In their paper the authors say that ""social constructs" are objective and operational, i.e. verifiable or at least reconstructable by applying laws and rules [page 1]. That is an ideal, but very often they seem to be more or less biased, on the basis of assumptions of the group. It seems that in addition to information constructed in the system, the designers should take into account the epistemological basis of the system, within some reasonable limits.

The authors say also that "Information systems are human products which are formed to support the communication and co-operation of human beings in living and working together" [page 2]. Not necessarily so. Many systems are built in order to get (and use) better information and knowledge than what the rivals are using. In that case the users are carefully hiding information and/or knowledge from the others, in a bad situation even from colleagues in their own company [Ackoff, R. L. Management Misinformation Systems. Management Science. Vol. 14, No. 4].

The authors say also that "The intuitively used construction rules and intuitively applied construction acts can be made explicit by pointing out the logic of the relations existing between terms, between referents, and between terms and referents of a proposition" [page 5]. They propose a logic of construction acts. That seems to lead to a completely deterministic world (?). That may not be realistic assumption. In modelling it happens often that a original term and a referent don't fit together properly. One has to construct new terms (referents), which in turn leads to construction of new rules. How the user can conclude that that the term he is using, is correct and corresponds to the referent?

In page 7, the authors say that "essential for the flexibility of the whole approach is that we can consider individual observers as well as groups or even whole societies". Maybe we should take into account, that all individuals have originally their own conceptions, and even in communication situations the receiver tries to understand the incoming message from his own point of view,

² Heylinghen, F. Epistemology, introduction. Principia Cybernetica Web. Sep. 1993.

and often he also tries to interpret it as much as possible like the message he would make himself in similar circumstances. It improves possibilities in understanding and achieving a common agreement in communication but does not guarantee that. However, learning and the extensive education systems tend to standardise some of the conceptions, and the use of language, but not all of them. Communication is also in many ways related to understanding.

My conclusion is that research on deep aspects of information systems should be continued, especially applied principles of (information system) epistemology and construction and use of concepts and conceptions.