Comments on "Semiotic approach for object abstraction" by B. A. Calway

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Abstract

Object-oriented systems tend to impose a naive objectivist view of reality but, because an interpreter is always involved in relating sign to reality whenever we are using information or analysing systems, it is a gross over-simplification. A subjectivist approach is more accurate and it brings to OO-analysis and design the benefit of a canonical object structure.

Keywords

Object, analysis, semantics, interpreter, meaning, ontology, existence, signs, information systems, specification.

1 INTRODUCTION

This brief discussion of some ideas in the paper by Calway builds on my comments on the paper by Holm and Karlgren (H&K) earlier in these proceedings. Reviewing various semantic theories used by information systems practitioners, H&K drew attention to the role of the interpreter in establishing the meanings of signs (words, numbers, expressions, diagrams etc) in terms of their usage in practical circumstances (Wittgenstein's meaning-as-use theory), and they also emphasise Ehn's (1988) valuable advice that only by involving themselves with the people using language can the analysts understand the meanings in use. Calway's insight, based on experience of complex problems such as applying the ISO-9001 standard to the quality of higher education, is that people need to adopt a variety of meanings to suit the many particular views of an issue needed in different circumstances. He explains how to discover these different meanings and, thereby, raises the question: How can we avoid confusion and keep track of many different interpretations?

2 AGENTS FORMING THE SIGNIFIER AND THE SIGNIFIED

In any instance of sign usage, two interpreters are involved, not one as Peirce's triangle would seem to imply. Figure 1, therefore shows two triangles. In the first, one agent, called by Calway the "signifier", experiencing something in the world called "O1", signifies it by some token called "S". A second agent he calls the "signified" makes sense of S without access to O1, by selecting O2 as what he/she thinks is signified. Thus, the sign generally has two meanings, and the analyst-observer must make sense of them.

This can be accomplished in two ways: keeping track of distinct meanings or reconciling them. The second option, reconciliation of meanings, is something we easily when working face-to-face in concrete situations. In those circumstances, differences of interpretations become obvious to the signifier-interpreter when the actions of the other person are not what was expected. This leads to a dialogue to expose and repair the inconsistency. More generally, a network of conversations about signs-in-use will take place in a society thereby establishing shared meanings over a whole community. This is indicated in the figure. However, when dealing with signs that do not have immediate, concrete effects, the reconciliation process is not available and we have to keep track of the different meanings who is responsible for them, even though these different meanings are separately, socially maintained.

The objects which each of the interpreters associate with the sign will be socio-subjectively established and maintained; they may be the same or different. This is not the straightforward, objectively given relationship between signs and objects assumed by most OO-analysts. The author, however, makes it clear that each 'object' is some pattern of usage and we should think, not of things that stand there, existing independently, but of repertoires of behaviour which are establish in the norms shared by groups of people. The solid lines between the two I's and their corresponding O's and between the I's and the shared sign, form two Peircian triangles showing the independence of the two meanings which they impute. The objectivists' one object turns out, on closer examination to be actually two or potentially many more. Does this not ruin the OO-model?

3 ACCOMMODATING DIFFERENT VIEWS

As the author has cited some work of mine that answers this question, let me explain. Two basic assumptions, make sense of the intrinsic subjectivity of all our perceptions and knowledge: 1) we have no knowledge without an agent being involved and the agent can know nothing without doing something; 2) we perceive invariants in the world around us (consider neural nets) and those invariants are repertoires of behaviour that things make possible (Stamper 1985 and 1996?). This operationalises the notion of an intensional meaning.

These two assumptions gives rise to the concept of *ontological dependency* because some invariants can only exist when others are established. Figure 2 illustrates this for the kind of rather vague concepts that the author was facing. The root agent is Society, to which we must turn for judgements of a commonsense kind. More specific meanings may be supplied by