A Phenomenological Approach to Computational Modeling of Analogy

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Abstract : In this work, a phenomenological approach to computational modeling of analogy processing is carried out. The paper goes through the consideration of the structure of the analogy, based on the possibility of sustaining the genesis of its elements regarding Husserl's genetic theory of association. Among particular processes which take place in order to get analogical inferences, there is one which arises crucial for enabling efficient base cases retrieval through long-term memory, namely analogical transference grounded on familiarity. In general, it has been argued that analogical reasoning is a way by which a conscious agent tries to determine or define a certain scope of objects and relationships between them using previous knowledge of other familiar domain of objects and relations. However, looking for a complete description of analogy process, a deeper consideration of phenomenological nature is required in so far, its simulation by computational programs is aimed. Also, one would get an idea of how complex it would be to have a fully computational account of the analogy elements. In fact, familiarity is not a result of a mere chain of repetitions of objects or events but generated insofar as the object/attribute or event in question is integrable inside a certain context that is taking shape as functionalities and functional approaches or perspectives of the object are being defined. Its familiarity is generated not by the identification of its parts or objective determinations as if they were isolated from those functionalities and approaches. Rather, at the core of such a familiarity between entities of different kinds lays the way they are functionally encoded. So, and hoping to make deeper inroads towards these topics, this essay allows us to consider that cognitive-computational perspectives can visualize, from the phenomenological projection of the analogy process reviewing achievements already obtained as well as exploration of new theoretical-experimental configurations towards implementation of analogy models in specific as well as in general purpose machines.