

## Rainer E. Zimmermann: Projektübersicht I NEA ΠΟΛΥ

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### The Sociocomplexity of Urban Space

Visualizing the structure of a city as outcome of some progressive space design based on the analysis of the city's observable explicit morphology being itself the result of primarily unobservable implicit social interactions, it is straightforward to assume that the one is to the other what generally in nature the macro-level of observable phenomena is to the micro-level of unobservable phenomena. This discrepancy between what there is and what can be observed in principle characterizes the human approach to the world and produces many epistemological consequences which determine the various techniques of modeling and theorizing. Hence, although very practical and concrete within its technical fields of applications, on a more fundamental level, urban space design is linked to basic questions and research problems in other fields of philosophy, science and art, and thus becomes a region of strict interdisciplinarity connecting physics and (mathematical) logic on the one hand with biology, sociology, and psychology, on the other. This present research project has the task of further illuminating these connections and drawing conclusions which make possible a reconciliation of conceptualizing aesthetic form as well as ethical requirement.

### Home (Heimat): Language & Space

The concept of *home* (Heimat) in the sense of the German philosopher Ernst Bloch anticipates a harmonic social scenario in the future representing the result of harmonizing the underlying social interactions. For him, home is something which is still to come, but which "shines forth" into human childhood by means of ongoing socialization. Hence, this concept resembles the generalized concept of *hodological space* as formally originating from Gestalt psychology (in the sense of Kurt Lewin and others), but re-modernized within the existential philosophy of Jean-Paul Sartre. On a more fundamental level it turns out that not only is language, as the main instrument of socialization, deeply related to that hodological space and in fact, decisively influencing its explicit patterns, but that its own logical basis, formulated in terms of modern (mathematical) topos theory, can be directly related to the cognitive and communicative foundations of human beings.<sup>1</sup>

### Virtual and Social Spaces

In order to clarify the various underlying structures of human cognition and communication, it is necessary to construct a hierarchy of conceptual forms which has an intrinsic anthropological relevance: Note that *virtual space* (different from the everyday usage of the

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<sup>1</sup> Rainer E. Zimmermann, Wolfgang Hofkirchner: The Topos of Virtuality (I), TripleC 7(1), 2009, 74-87.

word) is the most general space (as “space of possibilities”) while *social space* is a specialization then (referring to the space of those possibilities which have been actualized). Seen under this perspective, it is obvious that *physical space* is still more special and abstract. But this sort of specialization is due to the fact that human thinking (defined as “propositional reflexion”) is already constituted as one which is spatial in the first place. (Even time is *spatialized* as far as it goes.) Hence, there is a kind of self-reference implicit in human thinking: namely to refer to the world as one which is spatial *meaning* that the world *appears to be spatial* because space is a constitutional category of human thinking. One would even agree to say that the world has been developed “upward oriented”, starting with fundamental physical structures, up to biological structures and social structures. So that human thinking shows up as a product of the hierarchical evolution of nature. Indeed, this is true as far as modern realistic philosophy would agree upon the fact that actually, there *is* a world independent of human thinking. And thus humans are a product of this evolution. – But on the other hand, this evolution has composed human beings such that their biological structure delivers them a set of cognitive abilities which makes the world *appear* to them in a special way. Hence, the world *is not* as it *is being observed*. Theories of human beings can only refer to a part (an aspect) of the world. And this sheds some relevant onto-epistemic light onto physics as well as biology and sociology indeed.<sup>2</sup>

It is equally important to apply the above-mentioned results to a detailed study of the spaces involved, particularly with respect to social and virtual spaces, as has been done within the framework of two earlier projects (the Bologna project in cooperation with Anna Soci at the university of Bologna, and the Otherland project in cooperation with Wolfgang Hofkirchner at the university of Salzburg).<sup>3</sup>

### Topology of Communication

Finally, when collecting results, the question is to be tackled how the spatial constitution of human thinking can be actually visualized within the framework of some unified theory. In other words: What is needed is a kind of *meta-theory* which covers the phenomenological aspects of empirical results but at the same time tells us how to construct theories in the first place due to the outcome of these results. This idea goes back as far as to Sigmund Freud who thought that psycho-analysis would be a suitable representative of such a theory (as

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<sup>2</sup> Rainer E. Zimmermann: Spinoza in Context. In: E. Martikainen (ed.), Frankfurt a.M., 2002, 165-186. – Id.: The Modeling of Nature as a Glass Bead Game. In: E. Martikainen (ed.), Helsinki, 2005, 43-65. – Id.: On the Modality of the World. In: F. Linhard/P.L.Eisenhardt (eds.), Klostermann, Frankfurt a.M., 2007, 217-242. – Id.: Conceptualizing the Emergence of Entropy, *Quantum Biosystems* 1(2), 2008, 152-164.

<sup>3</sup> Rainer E. Zimmermann, Anna Soci, Giorgio Colacchio: Reconstructing Bologna. The City as an Emergent Computational System. (I) [www.arxiv.org/pdf/nlin.AO/0109025](http://www.arxiv.org/pdf/nlin.AO/0109025). – Rainer E. Zimmermann: Decentralization as Organizing Principle of Emergent Urban Structures. In: I. Arshinov/C. Fuchs (eds.), INTAS vol. 1, Moscow, 2003, 36-55. – Rainer E. Zimmermann, Anna Soci: The Emergence of Bologna and its Future Consequences. [www.arxiv.org/pdf/cond-mat/0411509](http://www.arxiv.org/pdf/cond-mat/0411509). – Rainer E. Zimmermann: Otherland Revisited. Philosophical Implications of Artificial Worlds. (I) In: I. Dobronravova/W. Hofkirchner (eds.), INTAS vol. 2, Kyiv, 2004, 86-116. – Id.: (II) In: id./V. Budanov (eds.), INTAS vol. 3, Kassel UP, 2005, 29-44. – Id.: “... the exact size, shape and color of hope itself.” *Virtual Environment and Concrete Utopia*. In: F. Vidal (ed.), *Bloch-Jahrbuch* 2006, 67-82.

Patricia Kitcher has discussed more recently), but nowadays *biosemiotics* and/or *design science* (the latter going back to ideas of Buckminster Fuller) would claim a comparative task.<sup>4</sup>

The important point is here that the possible achievement of such a theory would lead the philosophical discussion back to an old figure of ancient thinking, namely that there is an inherent relationship between *aesthetics* and *ethics* which makes it possible to read from the aesthetical categories of a phenomenological form whether it is ethically acceptable or not, and viceversa: to make sure that an appropriate ethical attitude would imply a harmonic aesthetical form. Nowadays, this ancient concept of “*kalokagathía*” regains again a very strong position in the conceptualizing of the sciences.

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<sup>4</sup> Rainer E. Zimmermann: Topological Aspects of Biosemiotics. *TripleC* 5(2), 2007, 49-63.