R-135/12 "Theoretical Psychology"

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The main aim of the project "Theoretical Psychology" was to construct the basics of a unified theory for spatial, temporal, and causal thinking. Methodologically this was undertaken by combining humanities-based (cognitive-linguistic analysis) and natural-science-based (empirical review, empirical interpretation, and experimental inquiry) approaches. The three cornerstones of the new theory are: cognitive spacetime, cognitive perspective, and elementary force dynamics.

The first cornerstone for a unified cognitive space-time-causality theory, the concept of cognitive spacetime (Stocker, 2014c), proposes, based on empirical and linguistic evidence, that we cannot think about space without time (cognitive object spacetime) and that we cannot think about time without space (cognitive event spacetime). For spatial cognition, an *xyzt*-spacetime is proposed, in which time *t* remains a necessary part of all spatial cognition including static cognition, and for temporal cognition, an *xt*-spacetime is proposed, in which a spatial component *x* remains a necessary part of all temporal cognition.

The second cornerstone for a unified cognitive space-time-causality theory is the proposal that object-spatiotemporal ("spatial") and event-spatiotemporal ("temporal") thinking is always cognized with a cognitive perspective (Stocker 2012a, 2012b, 2014b). This for instance means that our eyes unconsciously follow an invisible (mentally construed) time line while thinking about time (Stocker, Hartmann, Martarelli, & Mast, In Revision; Hartmann, Martarelli, Mast, & Stocker, 2014).

The third cornerstone for a unified cognitive space-time-causality theory relates to causal cognition (cause-effect thinking) and involves “elementary force dynamics”. Elementary force dynamics – a revised and expanded version of Talmyan force dynamics – describes the basic elements (conceptual primitives) that are needed to think in terms of cause and effect (Stocker 2013b, 2014a). Elementary force dynamics can furthermore also be used as a formal basis to describe many areas of thinking that go beyond causal cognition – for instance for conditional, epistemic (knowledge vs. inference), counterfactual, and probabilistic thinking (Stocker, 2014a).

Currently, in the cumulative habilitation thesis of Kurt Stocker, it is made transparent how cognitive spacetime (Stocker, 2014c), cognitive perspective (Hartmann et al., 2014; Stocker 2012a, 2012b, 2014b; Stocker et al., In Revision) and elementary force dynamics (Stocker 2013b, 2014a) together build the foundations of a unified theory for spatial, temporal, and causal thinking. Although the term unified cognitive space-time-causality theory may sound abstract, the theory in essence deals with nothing else but our basic properties of thought. Thus, it stands to reason that such findings can also be used in an applied way. In this spirit, it is for instance, in a collaboration between the University of Zurich and the University Hospital of Zurich, now investigated, if people suffering from posttraumatic stress disorder (PTSD) look differently through event spacetime with their eyes (look differently along the mental time line) than people without PTSD. The goal of such investigations is to eventually be able to contribute to optimizing therapeutical measures.

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