A Holistic Axiomatic Approach to Human-Body Systems-Dynamics

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Abstract. A hierarchically nested structure of functional compartments with effectuation dynamics emerging by successive translation from embedded functional units, themselves functional compartments composed from functional units is postulated. It spans from 10^{14} human-body cells to person's whole body in a bottom-up perspective, or from whole body to lower level functional components in drill-down. The latter perspective leads to *axiomatic "wirk-gefuege"*, a structure of effectuation and its dynamics, decomposable into three "*wirk-components*" for concerted effectuation of vital functions, production functions, and operational functions, that are *canonical* in *production systems*. The human-machine system of an excavator with human operator, the "*greifbagger*" model concept of whole human-body system, the Whole, is the motivating illustration. It is the advantage of an axiomatic approach to strip off all "companion information" and otherwise knowledge about the Whole when focusing on the *interaction* between those three level-one canonical functional components that expresses in and completely determines behavioral action of Whole. Generic in-component dynamics are postulated as simple first-order kinetics of "charge" transfers in a direct-current twin-circuit type of construct to comply with living nature's design principle of wake-sleep cycles.

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