Systematics & Systems Theory: Reconstructability Analysis of the Tetrad

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Ideas and graphs: the Tetrad of activity

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ABSTRACT

A graph can specify the skeletal structure of an idea, onto which meaning can be added by interpreting the structure. This paper considers several directed and undirected graphs consisting of four nodes, and suggests different meanings that can be associated with these different structures. Drawing on John G. Bennett's "systematics", specifically on the Tetrad that systematics offers as a model of "activity", the analysis formalizes and augments the systematics account and shows that the Tetrad is a versatile model of problem-solving, regulation and control, and other processes. Discussion is extended to include hypergraphs, in which links can relate more than two nodes, and the possibility of a "reconstructability analysis of ideas" is suggested.

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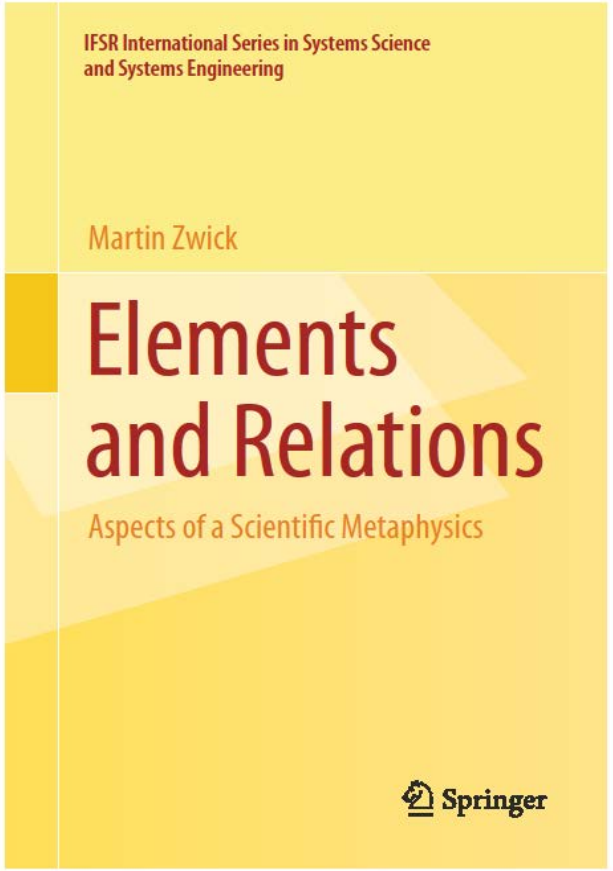
KEYWORDS
Graphs; ideas; Tetrad; activity; John G. Bennett; systematics; number symbolism; Charles Sanders Peirce; Talcott Parsons; hypergraphs; reconstructability analysis; Lattice of Structures

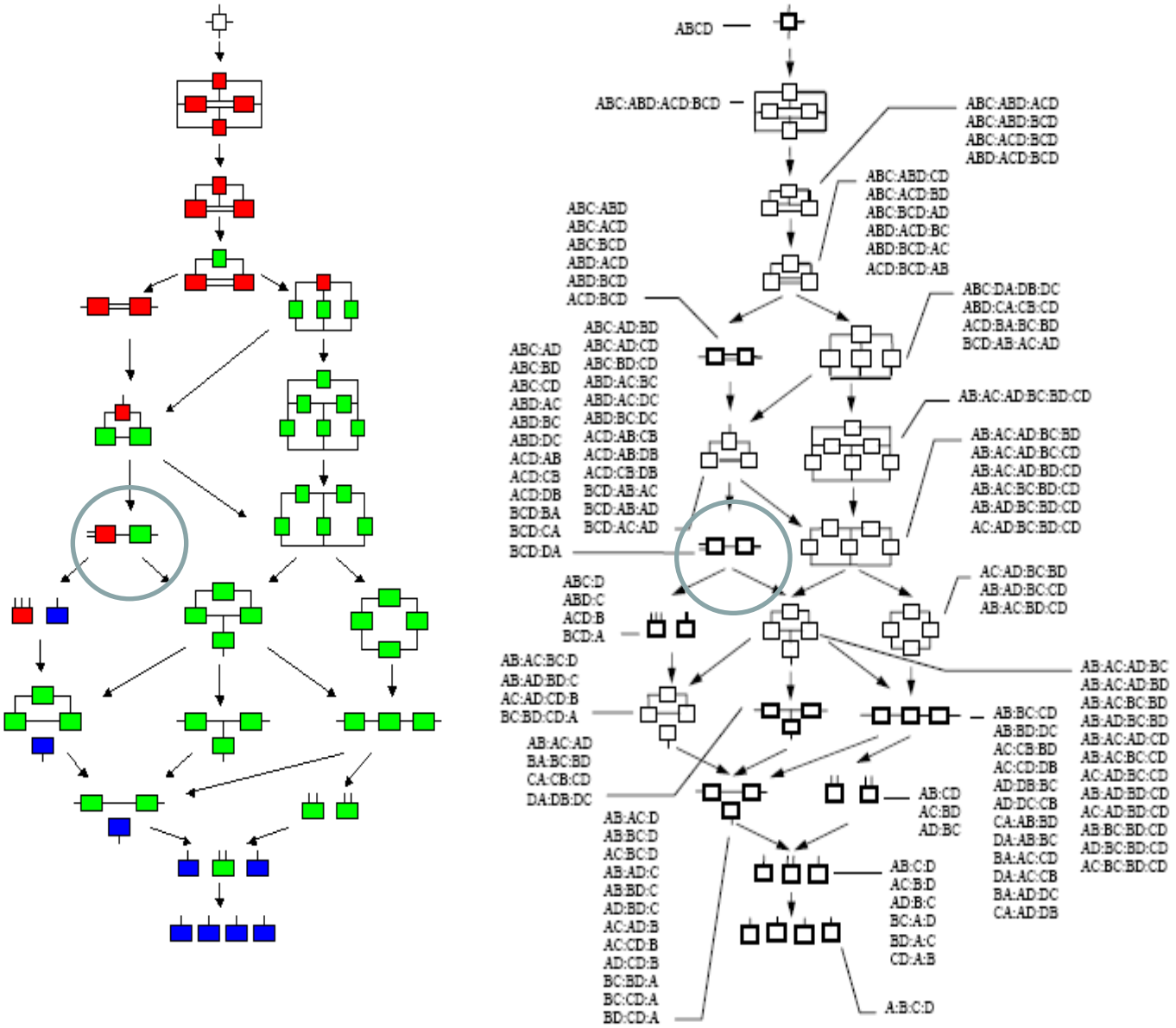
https://drive.google.com/file/d/1Z2P1NhOHmLMw_r3hkGXe43UOCEmp9o92/view?usp=sharing

Zwick, Martin (2023). *Elements and Relations: Aspects of a Scientific Metaphysics*. New York: Springer

https://link.springer.com/book/10.1007/978-3-030-99403-7



RA of the Tetrad

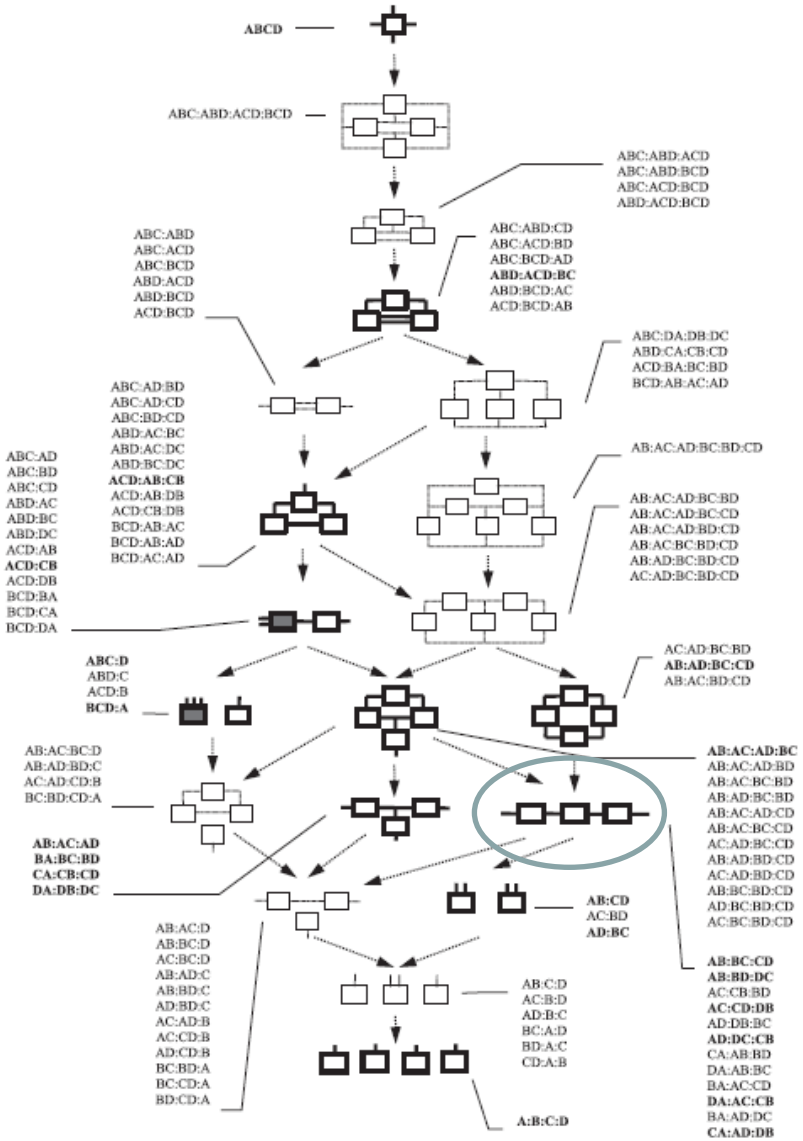


Examples of Bennett Tetrad

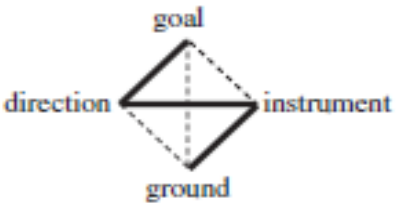
Table 1. Examples of the Tetrad discussed in this paper.

Source		Subject
Arrow	Figure 3	Decision theory: aggregation of ordinal preferences
Parsons	Table 4, Figure 5	Action: in general and in society and social systems
Ozbekhan	Table 5	Planning: policy, decision making, administration
Kauffman, Zwick	Figure 6	Scientific categories: matter/energy/information/utility
Browder	–	Kinds of mathematics
Zwick	Figure 7	Societal fundamentalisms
Wiener	Figure 8	Feedback control: illustrated by thermostat
Miller	Figure 9(a)	Adaptive decision/control
Ashby, Zwick	Table 6, Figure 10(a)	Genesis of control
MacLean	Figure 10(c)	Triune brain model
Lendaris	Figure 10(d)	Neural networks: Approximate Dynamic Programming
Diamond	Figure 11	Diachronic adaptive failure
Jenkins	Table 7	Phases of systems engineering

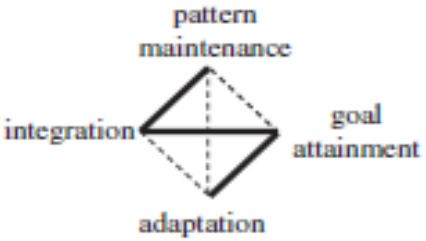
Structures of the examples



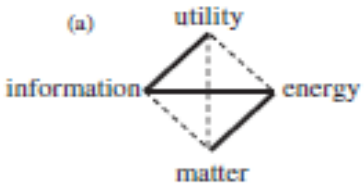
Examples of  (like JGB's 6 triads)

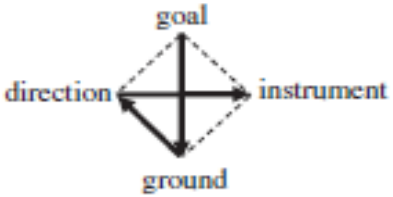


(b) Bennett

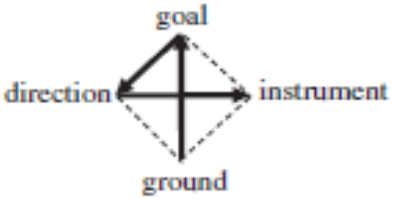


(a) Parsons

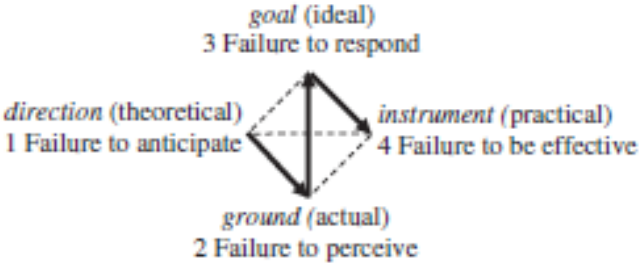


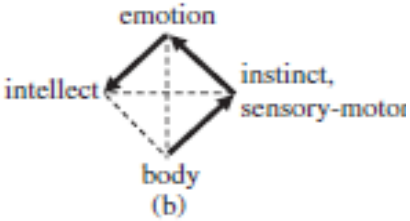


(a) Control

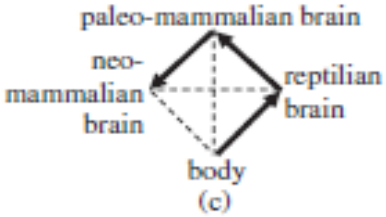


(b) Problem solving

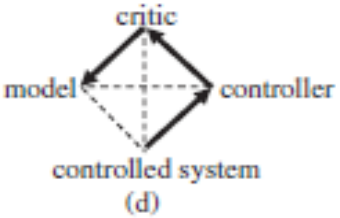




(b)

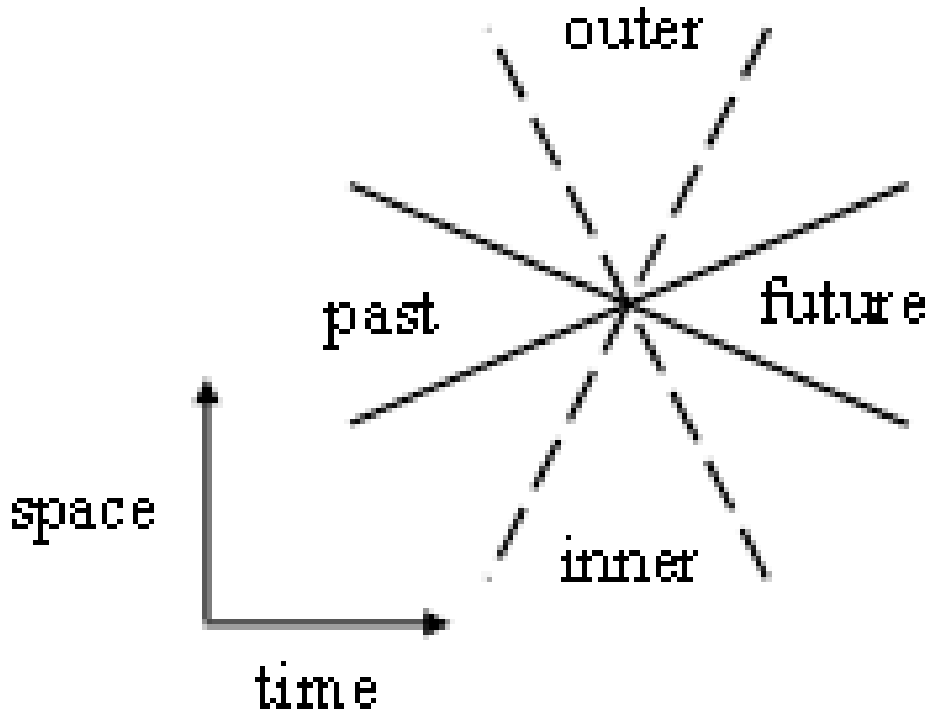


(c)



(d)

Cross of reality (Rosenstock-Huessy)



Thank you.

If you’re interested, consider looking at

https://web.pdx.edu/~zwick/JGB/

https://web.pdx.edu/~zwick/ER/

For questions/comments

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