

From Theory to Technology: Rules versus Exemplars

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Abstract

How is scientific knowledge used, adapted and extended in deriving real-world systems and technological devices? This paper aims at developing a general model of "applying science" based on the Exemplar-Based Explanation (EBE) model. EBE embodies the view that a real-world system is derived not by solving theoretical laws for specific boundary conditions but by constructing the system out of previously derived systems that function as exemplars. I will discuss a number of artifacts from hydraulics and language technology, and develop an instantiation of EBE which generalizes over different disciplines. I argue that engineering practice is highly cumulative: new systems are almost literally built upon and constructed out of previous systems resulting into increasingly complex wholes.

Subjects:

[General Issues: Technology](#)
[General Issues: Models and Idealization](#)
[General Issues: Explanation](#)

Conferences and Volumes:

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