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Carolyn L Talcott* (clt@cs1.sri.com), SRI International, 333 Ravenswood Avenue, Menlo Park, CA 90425. *Datum Logic: A Formal Executable Semantics for Experimental Evidence.*

Executable symbolic models of signal transduction have been successfully used to analyze networks of biological reactions. Such models can provide insights into how cells work, and a means to understand and predict the effects of perturbations and mutations, key for cellular understanding of disease and therapeutics. Pathway Logic (PL) is a formal system for representing and reasoning with executable models of cellular processes. Developing models requires significant expertise and time to collect, organize and interpret experimental evidence; and to infer rules representing hypothesized biochemical reaction that make up a signaling network. There is a great need for tools to help automate the curation of executable models.

The problem of automatically constructing executable models from experimental evidence has several aspects including: (1) formal representation of experimental findings, (2) formal representation of rules as elements of executable models, (3) extracting findings from papers, and (4) algorithms for inferring rules from findings and for assembly of executable models. The PL representation system is a solution for (2). Datum Logic is a solution to (1,4). We will describe the representation, and an approach to inferring rules from datums. (Received September 18, 2015)