

CATEGORY THEORY AND MODEL THEORY: SYMBIOTIC SCAFFOLDS

JOHN T. BALDWIN

A *scaffold* for mathematics includes both *local* foundations for various areas of mathematics and productive guidance in how to unify them. In a scaffold the unification does not take place by a common axiomatic basis but consists of a systematic ways of connecting results and proofs in various areas of mathematics. Two scaffolds, model theory and category theory, provide local foundations for many areas of mathematic including two flavors (material and structural) of set theory and different approaches to unification. We will discuss salient features of the two scaffolds including their contrasting but bi-interpretable set theories. We focus on the contrasting treatments of ‘size’ in each scaffold and the advantages/disadvantages of each for different problems.

UNIVERSITY OF ILLINOIS AT CHICAGO