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In joint work with Yi-Zhi Huang and Lin Zhang, we have developed a “logarithmic tensor category theory” for suitable categories of generalized modules for a vertex operator algebra, and more generally, for a conformal or Möbius vertex algebra, incorporating natural actions of the Virasoro algebra or of  $\mathfrak{sl}(2)$  and allowing for the grading restrictions for a vertex operator algebra to be relaxed. The source of the logarithms is the allowability of generalized weight spaces rather than ordinary weight spaces for the generalized modules, along with the nonsemisimplicity of the module category. Vertex operator algebras are analogues of Lie algebras in a certain subtle sense, and the present theory is the analogue of the consideration of the usual tensor category of modules for a given Lie algebra whose module category need not be semisimple. But in contrast with the classical Lie algebra situation, this vertex-algebraic analogue is an extensive theory, requiring the development and use of subtle methods, both algebraic and analytic. In recent work, we have generalized and strengthened our results, permitting their applicability under more relaxed, natural conditions. I will sketch these recent developments. (Received March 30, 2010)