1172-17-8 **Erik Mainellis*** (`ekmainel@ncsu.edu`). *Factor Systems and the Second Cohomology Group of Leibniz Algebras.*

Factor systems are a tool for working on the extension problem for algebraic structures such as groups, Lie algebras, and Leibniz algebras. We construct the Leibniz-analogue to a series of group-theoretic results from W. R. Scott's Group Theory. Fixing a pair of Leibniz algebras A and B, we develop a correspondence between factor systems and extensions of A by B. This correspondence is strengthened by the fact that equivalence classes of factor systems correspond to those of extensions. Under this correspondence, central extensions give rise to 2-cocycles while split extensions give rise to 2-coboundaries. We thus have a notion of the second cohomology group of A with coefficients in B. (Received July 06, 2021)

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