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Peter Y. Gates* (peter@catinf.com), Categorical Informatics, 250 Main St #426035, Cambridge, PA 02142, and **Ryan Wisnesky**. *Data modeling and integration using the open source tool Algebraic Query Language (AQL)*.

In this talk we present a new approach to databases based on category theory. A database schema is represented as a category C , and a database instance on C is represented as a functor $C \rightarrow \text{Set}$. Mappings between schemas correspond to functors $F : C \rightarrow D$, and each mapping induces three data migration functors: $\Delta_F : D\text{-Set} \rightarrow C\text{-Set}$ and its two adjoints $\Pi_F, \Sigma_F : C\text{-Set} \rightarrow D\text{-Set}$. In this way we obtain a basis of data manipulation operations suitable for querying data (providing an alternative to relational algebra), and for migrating/integrating data (providing an alternative to an algorithm from database theory known as “the chase”). This project originated at MIT in 2010, and has culminated in an open-source data integration tool called AQL, available at categoricaldata.net/aql.html, as well as a start-up company, Categorical Informatics, which is building out the tool with the support of the National Institute of Standards and Technology (NIST). In this talk we sketch the broad outlines of this research program, as well as demonstrate the AQL tool. (Received September 11, 2017)