1056-16-1369 **Forest Fisher*** (fdfisher@gwmail.gwu.edu) and **William Schmitt** (wschmitt@gwu.edu). *A decomposition of the Dynkin idempotent in the Hopf algebra of graphs.* Preliminary report.

We define a graded, connected, cocommutative Hopf algebra with basis indexed by a family of graphs, and show that its coproduct splits into the sum of two (noncoassociative) coproducts. This allows us to define a sequence of maps $\alpha_1, \alpha_2, \ldots$, each of which maps into the primitives, and whose sum is the well-known Dynkin idempotent. In particular, the map α_1 maps onto the primitive elements, and can be characterized in a familiar way by considering a different Hopf algebra grading. (Received September 21, 2009)