1000-53-181   **Jerzy Kocik*** (`jkocik@math.siu.edu`), Mathematics Department, Southern Illinois University, Carbondale, IL 62901. *Classical mechanics on Lie algebras, and more.* Preliminary report.

A graphical representation of tensor calculus is used to review the geometry of a Lie algebra. As an application we discuss the existence of a natural geometric structure on Lie algebras – namely a unique field of local endomorphisms. This can be considered as a counterpart of the well-known Kirillov-Kostant-Souriau theorem on the existence of a Poisson structure on a Lie co-algebra. An analytic description of dynamical systems (encompassing Lax equations) is considered, in which some features of Hamiltonian mechanics find their analogs. (Received August 24, 2004)