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George J McNinch* (george.mcninch@tufts.edu), Dept Mathematics, Tufts University, 503 Boston Ave, Medford, MA 02474. *Nilpotent elements and sections.*

Let X be a nilpotent element in the Lie algebra of a split semisimple algebraic group G over a field k whose characteristic is “very good” for G . It can be useful to view X as the “value at the closed point” for a section of some related Lie theoretic structure defined over a DVR A with residue field k . This sometimes permits one to related numerical or combinatorial data over k and over the field of fractions K of A .

We will describe two settings for such arguments. The first involves a recent result of McNinch-Testerman. When X is even, we use a section of a certain A -Lie algebra to relate the dimension of the center of the centralizer of X to the dimension of the center of the Levi factor of the parabolic subgroup attached to X .

In the second setting, we consider a split semisimple group scheme H over A for which $H_k = G$. When A is complete, we explain how one can find a nilpotent section Y in $\text{Lie}(H)$ whose image in $\text{Lie}(G)$ is X and for which $Y \in \text{Lie}(H) \subset \text{Lie}(H_K)$ is labelled by the same combinatorial data. It follows that the “type” of the reductive quotient of $C_G(X)$ is independent of “very good” characteristic. (Received July 14, 2016)