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Chevalley Generators in Étale Stalks

Chevalley-Demazure group schemes are functors from the category of unital commutative rings to the category of groups, whose complex points recover classical linear algebraic groups such as SL_n , SO_n , etc. The group of points over an algebraically closed field can be completely described by Chevalley generators and their relations as detailed in Steinberg's famous Yale lecture notes. However, this description is insufficient over general rings where the subgroup generated by all Chevalley generators, called the elementary subgroup, is often a proper subgroup. Despite this, we will discuss how calculations with Chevalley generators are still sufficient to analyze group homomorphisms by looking at stalks with respect to the étale topology.