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Peter Abramenko* (pa8e@virginia.edu), Dept. of Mathematics, P.O. Box 400137, University of Virginia, Charlottesville, VA 22904. *Torsion elements in stabilizers of apartments.*

Let G be any Chevalley group (scheme) with associated Weyl group W , K any field and (B,N) the usual BN-pair in $G(K)$. Then it can be proved (joint work with Matt Zaremsky) that there are elements w in W such that all representatives of w in N have finite order. This has the following consequence: Every subgroup of $G(K)$ which stabilizes and acts chamber transitively on some apartment of the associated spherical building has torsion. A similar statement is true for the action on the affine building of $G(K)$ if K is endowed with a discrete valuation. This leads to many examples of (torsionfree S -arithmetic) groups which act Weyl transitively but not strongly transitively on affine buildings. Previously those examples were only known in the tree case (joint work with Ken Brown). (Received August 25, 2009)