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Pramod N. Achar*, 266 Lockett Hall, Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803, and **Daniel Sage**. *On special pieces and two-sided cells*. Preliminary report.

“Special pieces” are certain subvarieties of the unipotent variety in a complex algebraic group. Lusztig has illustrated a certain relationship between the geometry of special pieces and the finite groups “ \mathcal{G}_c ” used to parametrize unipotent characters of a finite group of Lie type. In this work, we refine Lusztig’s description of this relationship. We also discuss connections with his conjecture (known for classical groups by work of Kraft-Procesi) that each special piece is the quotient of a smooth manifold by the action of a finite group. (Received September 19, 2005)