Markus Hunziker and Mark R. Sepanski* (Mark_Sepanski@baylor.edu), Department of Mathematics, Baylor University, One Bear Place #97328, Waco, TX 76798-7328. Distinguished orbits and the L-S category of simply connected compact Lie groups.

We show that the Lusternik-Schnirelmann category of a simple, simply connected, compact Lie group $G$ is bounded above by the sum of the relative categories of certain distinguished conjugacy classes in $G$ corresponding to the vertices of the fundamental alcove for the action of the affine Weyl group on the Lie algebra of a maximal torus of $G$. (Received September 20, 2010)