1084-20-267 **Bhama Srinivasan**, Department of Math, Stat, and Comp Sci, University of Illiinois at Chicago, 851 South Morgan Street, Chicago, IL 60607, and **C. Ryan Vinroot*** (vinroot@math.wm.edu), Department of Mathematics, College of William and Mary, P. O. Box 8795, Williamsburg, VA 23187. *Jordan decomposition and real-valued characters.* Preliminary report.

Let $\mathbf{G}$ be a connected reductive group defined over a finite field $\mathbb{F}_q$ by Frobenius map F, and let $G = \mathbf{G}^F$. The Jordan decomposition of characters gives a correspondence, with certain invariance properties with respect to Deligne-Lusztig induction, between irreducible characters of G, and pairs (s, ψ), where (s) is a semisimple class in the dual group G^*, and ψ is a unipotent character of $C_{G^*}(s)$, the centralizer of s in G^*. If s is a real element of G^*, suppose $h \in G^*$ such that $hsh^{-1} = s^{-1}$. Then the character ${}^h\psi$, ψ composed with conjugation by h, is also a unipotent character of G^*. We conjecture that the irreducible character of G corresponding to the pair (s, ψ) is real-valued if and only if s is a real element, and ${}^h\psi = \bar{\psi}$, where $hsh^{-1} = s^{-1}$. We give a proof of this in the case that $\mathbf{G}$ has connected center, and the centralizer $C_{G^*}(s)$ is a Levi subgroup of G^*. (Received September 03, 2012)