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Let  $p$  and  $q$  be distinct primes,  $G$  a finite group, and consider a  $p$ -block  $B_p$  and a  $q$ -block  $B_q$  (of  $G$ ). In 1997, G. Navarro and W. Willems conjectured the following: If  $Irr(B_p) = Irr(B_q)$  then  $B_p$  consists of a single character. Recently C. Bessenrodt showed that the 6-fold covering group of  $A_7$  provides a counterexample when  $p = 5$  and  $q = 7$ . This has not diminished the interest in the conjecture, which is true in a number of important cases.

In 2007, J. Olsson and D. Stanton proved that the conjecture holds for the symmetric groups. Their approach involves studying simultaneous  $p$  and  $q$  core partitions (related to the work of J. Anderson). Subsequent research in this area has taken on many directions; B. Ford, L. Sze et al are studying the conjecture for the alternating groups, others have begun investigation properties of simultaneous cores and bar-cores, and recently M. Fayers found a connection with an action of the affine symmetric group. In this talk we survey this area, generalize some results, and discuss new directions and open questions. (Received August 04, 2010)