
For a finite group $G$, Brauer characters give a way of studying irreducible representations in characteristic $p$, by “lifting” information to characteristic 0. We extend the notion of Brauer characters and some basic properties to the case of a bismash product $H = k^G\#kF$ of groups $F$, $G$. For example, we show that the determinant of the Cartan matrix is a power of $p$. We then prove the analog of a theorem of J. Thompson (1986) on Frobenius-Schur indicators:

**THEOREM:** Let $k$ be an algebraically closed field of odd characteristic. Let $H_{\mathbb{C}} = \mathbb{C}^G\#\mathbb{C}F$ be a bismash product over $\mathbb{C}$ and $H_k = k^G\#kF$ the corresponding bismash product over $k$.

Then if all irreducible $H_{\mathbb{C}}$-modules have Schur indicator $+1$ (respectively $\pm 1$), the same is true for all irreducible $H_k$-modules.

Using the theorem and our previous work with Jedwab over $\mathbb{C}$ we show that if $k$ is as above and $H_k = k^{C_n}\#kS_{n-1}$ is the bismash product constructed from the standard factorization of the symmetric group $S_n = S_{n-1}C_n$, then every irreducible representation of $H_k$ has indicator $+1$, that is $H_k$ is totally orthogonal. (Received September 07, 2011)