Revisiting Brauer Witt Theorem

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Abstract: A classical theorem due to Brauer and Witt implies that every simple component of the rational group algebra $\mathbb{Q}G$ of a finite group G is Brauer equivalent to a cyclotomic algebra containing $\mathbb{Q}$ in its centre. The precise description of this cyclotomic algebra is not available from the proof of the Brauer-Witt theorem and it has been a problem of interest to determine the same in view of its central role in the study of central simple algebras. In this talk, a new approach using Shoda pair theory will be discussed, which is quite efficient from computational perspective.