

Word maps on groups and algebras

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Abstract: Given a word w in d variables it gives rise to a map on a group G , called word maps defined by evaluation. The main question is to understand what is the fibre and image of such maps. Such questions are motivated by the Waring problem in number theory and Ore's conjecture in group theory. In the last couple of decades, there has been tremendous progress in this area. In a similar spirit to a polynomial in d non-commuting variables, one defines a map on a central simple algebra A and again one wants to understand the nature of the image, like Kaplansky-L'ovo conjecture. In this expository talk, we will see some of the results proved in this direction and the kind of questions being studied.