

## **Product-free sets in the free group**

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We prove that product-free sets of the free group over a finite alphabet have maximum density  $1/2$  with respect to the natural measure that assigns total weight one to each set of irreducible words of a given size. This confirms a conjecture of Leader, Letzter, Narayanan and Walters. In more general terms, we actually prove that strongly  $k$ -product-free sets have maximum density  $1/k$  in terms of the said measure.

This is joint work with Juanjo Rué and Oriol Serra.