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The free group F_2 , the braid group B_3 , and palindromes

We define a self-map $\text{Pal}: F_2 \rightarrow F_2$ of the free group on two generators a, b , using automorphisms of F_2 that form a group isomorphic to the braid group B_3 . The map Pal restricts to de Luca's right iterated palindromic closure on the submonoid generated by a, b , and is continuous for the profinite topology on F_2 . The values of Pal are palindromes and coincide with the elements g of F_2 such that abg is conjugate to bag .

Joint work with Christophe Reutenauer.