Stability and bounded balls of free products

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Abstract: In a series of papers starting in [2] and culminating in [3], Z. Sela proved that free groups, and more generally torsion-free hyperbolic groups, have a stable first-order theory. The question of the stability of the free product of two arbitrary stable groups has then been raised by E. Jaligot with, seemingly, the reasonable conjecture of a positive answer [1]. However, a full answer seems to become a very large project of generalization, from free groups to free products, of the above mentioned work.

In the meantime, we provide here a very preliminary — or somehow experimental — result in the direction of the stability of free products of stable groups, restricting ourselves to quantifer-free definable sets and to bounded balls of free products.

References

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