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Susan Hermiller* (hermiller@unl.edu) and **Zoran Sunic**. *No positive cone in a free product is regular*. Preliminary report.

We show that there exists no left order on the free product of two nontrivial, finitely generated, left-orderable groups such that the corresponding positive cone is represented by a regular language. Since there are orders on free groups of rank at least two with positive cone languages that are context-free (in fact, 1-counter languages), our result provides a bound on the language complexity of positive cones in free products that is the best possible within the Chomsky hierarchy. It also provides a strengthening of a result by Cristóbal Rivas stating that the positive cone in a free product of nontrivial, finitely generated, left-orderable groups cannot be finitely generated as a semigroup. (Received July 16, 2017)