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**Susan Hermiller** and **Zoran Sunic\*** ([sunic@math.tamu.edu](mailto:sunic@math.tamu.edu)). *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 geometric approach to a result by Cristobal 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 March 21, 2017)