

We say that a real number V is *good* if there exist two closed convex subsets X, Y of the unit cube in \mathbb{R}^3 , with volume V each, such that for each of the three coordinate planes (that is, the planes spanned by any two of the three coordinate axes), the projections of X and Y onto that plane are disjoint.

Find $\sup\{V \mid V \text{ is good}\}$.