

1026-05-22

Lorenzo Traldi* (traldil@lafayette.edu), Department of Mathematics, Lafayette College, Easton, PA 18042, and **Brian Kronenthal** (kronentb@lafayette.edu), Department of Mathematics, Lafayette College, Easton, PA 18042. *The prevalence of "paradoxical" dice. II. Tied dice.* Preliminary report.

A *generalized die* is a list (x_1, \dots, x_n) of integers. For integers $n \geq 1$, $a \leq b$ and s let $D(n, a, b, s)$ be the set of all dice with $a \leq x_1 \leq \dots \leq x_n \leq b$ and $\sum x_i = s$. Two dice X and Y are *tied* if the number of pairs (i, j) with $x_i < y_j$ equals the number of pairs (i, j) with $x_i > y_j$. We prove the following: with one exception (unique up to isomorphism), if $X \neq Y \in D(n, a, b, s)$ are tied dice neither of which ties all other elements of $D(n, a, b, s)$ then there is a third die $Z \in D(n, a, b, s)$ which ties neither X nor Y . (Received December 29, 2006)