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# About the heritability of uniformity of the *fractional part* of the convolution with a uniform random variable on a tessellation

In [1] the term fractional part was unified. In [2] it was shown that the fractional part of a convolution with a uniform on a square random variable is also uniform on a square. This work continues the generalization of these results.

**Definition.** *A set $M \subset \mathbb{Z}^n$ is called *-connected if each pair of dots from $M$ can be connected by a polygonal chain which segments have unit length and which nodes are elements of $M$.*

**Theorem 1.** *Let $M \subset \mathbb{Z}^n$ be a finite and *-connected set, and $\mathbb{Z}^n$ can be tiled with $M$. Let $\xi \sim R\{M\}$, $\eta$ be an independent with $\xi$ integer $n$-dimensional random variable. Then $\{\xi + \eta\} \sim R\{M\}$.*

**Theorem 2.** *Let $M \subset \mathbb{R}^n$ be a bounded connected measurable set, and $\mathbb{R}^n$ can be tiled with $M$. Let $\xi \sim R\{M\}$, $\eta$ be an independent with $\xi$ $n$-dimensional random variable. Then $\{\xi + \eta\} \sim R\{M\}$.*

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