THE CLOSEST PACKING OF CONVEX TWO-DIMENSIONAL DOMAINS, CORRIGENDUM

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Sometime ago I published an account(1), in outline, of certain results, which had been anticipated and largely superseded by work of L. Fejes Tóth(2). I now find that it is necessary to correct one of the results.

Let K be an open convex two-dimensional set. A system $K+\mathbf{a}_1, K+\mathbf{a}_2, \ldots$ of translates of K by vectors $\mathbf{a}_1, \mathbf{a}_2, \ldots$ is called a packing, if no two of the sets have any point in common. Let $d(K)$ denote the lower bound of the determinants of the lattices Λ, with the property that the system of translates of K by the vectors of Λ forms a packing.

My 1951 paper only proves

THEOREM 1a. *Let K and S be any open bounded convex sets with areas $a(K)$ and $a(S)$. Let K be symmetrical. If n sets K can be packed into S (with $n \geqslant 1$), then*

$$(n-1)\,d(K)+a(K) \leqslant a(S).$$

It incorrectly claims to prove such a result without the supposition that K should be symmetrical. No restriction to symmetrical sets is needed in Theorem 2, nor in the main conclusion that it is impossible to find a packing of similarly orientated congruent convex domains, which is closer than the closest lattice packing of the domains.

The error arises in the proof of Lemma 5; there is no justification for the assertion that it is permissible to suppose that the point $\frac{1}{2}(\mathbf{c}+\mathbf{d})$ coincides with the origin, since in this lemma a change of origin changes the area of the polygon Π. It is easy to see that this movement of the origin increases the area of Π by $\frac{1}{2}\,|\mathbf{b}-\mathbf{a}|\cdot(h_2-h_1)$,

(1) *Acta Mathematica*, 86 (1951), 309–321.

(2) *Acta Sci. Math. (Szeged)*, 12 (1950), 62–67.