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CORRIGENDUM TO THE PAPER "LATTICE OF DISTANCES BASED ON 3D-NEIGHBOURHOOD SEQUENCES"

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In Theorems 3.4 and 3.5 of the paper we claimed that $(S(l), \sim)$ and $(S^*(l), \sim^*)$, respectively, is a distributive lattice. These statements are false. We give now the correct forms of the Theorems.

Theorem 3.4. *For all $l \geq 2$ $(S(l), \sim)$ is not a lattice.*

Let $l \geq 2$ be arbitrary, but fixed integer. We use the following sequences: $A_1 = \{3, 1\}$, $A_2 = \{2\}$, $B_1 = \{2, 1, 3, 1, 3, 1, 3, 1, 3, \ldots\}$ and $B_2 = \{1, 3, 1, 1, 1, 1, \ldots\}$. Define $A'_j = \{a'_j(1), \ldots, a'_j(l)\}$, and $B'_j = \{b'_j(1), \ldots, b'_j(l)\}$ for $j = 1, 2$ in $S(l)$ in the following way: $a'_j(i) = a^{(j)}(i)$, $b'_j(i) = b^{(j)}(i)$, $i = 1, \ldots, l$. It is easy to show that if $A'_1 \wedge A'_2$ exists in $S(l)$, then it must be B'_1. However, clearly $B'_2 \sim A'_1, A'_2$, but $B'_2 \not\sim B'_1$, which completes the proof.

Theorem 3.5. *$(S^*(l), \sim^*)$ is not a lattice for any $l \geq 2$.*

First let $l \geq 5$, $A_1 = \{1, 2, 2\}$ and $A_2 = \{1, 2, 2, 2, 1\}$. One can readily verify that A_1 and A_2 have no least upper bound in $S^*(l)$ with respect to $\sim^*$.

Let now $2 \leq l \leq 4$, and let $A_1 = \{a^{(1)}(1), \ldots, a^{(1)}(l)\}$ and $A_2 = \{2\}$, where A_1 is defined in the following way: $a^{(1)}(1), \ldots, a^{(1)}(l)$ is the first l elements of $\{3, 1, 3, 1\}$. It is easy to check that these sequences have no least upper bound in $S^*(l)$ with respect to $\sim^*$, which completes the proof.