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Properties of Go-Board - Part III

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Summary. Two useful facts about Go-board are proved.

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The terminology and notation used in this paper have been introduced in the following articles: [16], [8], [1], [5], [2], [14], [15], [17], [4], [10], [9], [3], [6], [7], [13], [11], and [12]. For simplicity we follow the rules: p, q are points of $\mathcal{E}^2_{\rm T}$, f, g are finite sequences of elements of $\mathcal{E}^2_{\rm T}$, n, m, i, j are natural numbers, and G is a Go-board. One can prove the following two propositions:

(1) Suppose that

(i) for every n such that $n \in \operatorname{dom} f$ there exist i, j such that $\langle i, j\rangle \in$ the indices of G and $f(n) = G_{i,j}$,

(ii) f is one-to-one,

(iii) for every n such that $1 \leq n$ and $n \leq \operatorname{len} f - 2$ holds $\mathcal{L}(f, n, n+1) \cap \mathcal{L}(f, n+1, n+2) = \{f(n+1)\}$,

(iv) for all n, m such that $n - m > 1$ or $m - n > 1$ holds $\mathcal{L}(f, n, n+1) \cap \mathcal{L}(f, m, m+1) = \emptyset$,

(v) for all n, p, q such that $1 \leq n$ and $n \leq \operatorname{len} f - 1$ and $f(n) = p$ and $f(n+1) = q$ holds $p_{\mathbf{1}} = q_{\mathbf{1}}$ or $p_{\mathbf{2}} = q_{\mathbf{2}}$.

Then there exists g such that g is a sequence which elements belong to G and g is one-to-one and for every n such that $1 \leq n$ and $n \leq \operatorname{len} g - 2$ holds $\mathcal{L}(g, n, n+1) \cap \mathcal{L}(g, n+1, n+2) = \{g(n+1)\}$ and for all n, m such that $n - m > 1$ or $m - n > 1$ holds $\mathcal{L}(g, n, n+1) \cap \mathcal{L}(g, m, m+1) = \emptyset$ and for all n, p, q such that $1 \leq n$ and $n \leq \operatorname{len} g - 1$ and $g(n) = p$ and $g(n+1) = q$ holds $p_{\mathbf{1}} = q_{\mathbf{1}}$ or $p_{\mathbf{2}} = q_{\mathbf{2}}$ and $\widetilde{\mathcal{L}}(f) = \widetilde{\mathcal{L}}(g)$ and $f(1) = g(1)$ and $f(\operatorname{len} f) = g(\operatorname{len} g)$ and $\operatorname{len} f \leq \operatorname{len} g$.

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(2) Suppose for every n such that $n \in \operatorname{dom} f$ there exist i, j such that $\langle i, j\rangle \in$ the indices of G and $f(n) = G_{i,j}$ and f is a special sequence. Then there exists g such that g is a sequence which elements belong to G and g is a special sequence and $\widetilde{\mathcal{L}}(f) = \widetilde{\mathcal{L}}(g)$ and $f(1) = g(1)$ and $f(\operatorname{len} f) = g(\operatorname{len} g)$ and $\operatorname{len} f \leq \operatorname{len} g$.

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