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# Properties of Go-Board — Part III

Jarosław Kotowicz
Warsaw University
Białystok

Yatsuka Nakamura
Shinshu University
Nagano

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

MML Identifier: GOBOARD3.

WWW: http://mizar.org/JFM/Vol4/goboard3.html

The articles [9], [3], [11], [12], [2], [1], [8], [10], [6], [4], [5], and [7] provide the notation and terminology for this paper.

We adopt the following rules: $f$, $g$ are finite sequences of elements of $\mathcal{E}^2_{\rm T}$, $n$, $i$, $j$ are natural numbers, and $G$ is a Go-board.

The following two propositions are true:

(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 $f_n = G \circ (i, j)$, and

(ii) $f$ is one-to-one, unfolded, s.n.c., and special.

Then there exists $g$ such that

(iii) $g$ is a sequence which elements belong to $G$, one-to-one, unfolded, s.n.c., and special,

(iv) $\widetilde{\mathcal{L}}(f) = \widetilde{\mathcal{L}}(g)$,

(v) $f_1 = g_1$,

(vi) $f_{\operatorname{len} f} = g_{\operatorname{len} g}$, and

(vii) $\operatorname{len} f \leq \operatorname{len} g$.

(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 $f_n = G \circ (i, j)$ and $f$ is a special sequence. Then there exists $g$ such that

(i) $g$ is a sequence which elements belong to $G$ and a special sequence,

(ii) $\widetilde{\mathcal{L}}(f) = \widetilde{\mathcal{L}}(g)$,

(iii) $f_1 = g_1$,

(iv) $f_{\operatorname{len} f} = g_{\operatorname{len} g}$, and

(v) $\operatorname{len} f \leq \operatorname{len} g$.

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