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Introducing Spans[1]

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Summary. A sequence of internal approximations of simple closed curves is introduced. They are called spans.

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The articles [20], [17], [26], [3], [23], [2], [18], [27], [5], [6], [1], [4], [7], [25], [13], [14], [19], [10], [11], [12], [15], [16], [24], [8], [9], [21], and [22] provide the notation and terminology for this paper.

Let C be a non vertical non horizontal non empty subset of $\mathcal{E}^2_{\mathrm{T}}$ satisfying conditions of simple closed curve and let n be a natural number. Let us assume that n is sufficiently large for C. The functor $\mathrm{Span}(C,n)$ yielding a clockwise oriented standard non constant special circular sequence is defined by the conditions (Def. 1).

(Def. 1)(i) $\mathrm{Span}(C,n)$ is a sequence which elements belong to $\mathrm{Gauge}(C,n)$,

(ii) $(\mathrm{Span}(C,n))_1 = \mathrm{Gauge}(C,n) \circ (\text{X-SpanStart}(C,n), \text{Y-SpanStart}(C,n))$,

(iii) $(\mathrm{Span}(C,n))_2 = \mathrm{Gauge}(C,n) \circ (\text{X-SpanStart}(C,n) -' 1, \text{Y-SpanStart}(C,n))$, and

(iv) for every natural number k such that $1 \leq k$ and $k+2 \leq \operatorname{len}\mathrm{Span}(C,n)$ holds if $\mathrm{front_right_cell}(\mathrm{Span}(C,n),k,\mathrm{Gauge}(C,n))$ misses C and $\mathrm{front_left_cell}(\mathrm{Span}(C,n),k,\mathrm{Gauge}(C,n))$ misses C, then $\mathrm{Span}(C,n)$ turns left k, $\mathrm{Gauge}(C,n)$ and if $\mathrm{front_right_cell}(\mathrm{Span}(C,n),k,\mathrm{Gauge}(C,n))$ misses C and $\mathrm{front_left_cell}(\mathrm{Span}(C,n),k,\mathrm{Gauge}(C,n))$ meets C, then $\mathrm{Span}(C,n)$ goes straight k, $\mathrm{Gauge}(C,n)$ and if $\mathrm{front_right_cell}(\mathrm{Span}(C,n),k,\mathrm{Gauge}(C,n))$ meets C, then $\mathrm{Span}(C,n)$ turns right k, $\mathrm{Gauge}(C,n)$.

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