

<i>Queue</i> <i>queue_elements</i> : seq \mathbb{N}
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<i>create</i> $\Delta Queue$
<i>queue_elements'</i> = $\langle \rangle$

<i>append</i> $\Delta Queue$ <i>elem?</i> : \mathbb{N}
<i>queue_elements'</i> = <i>queue_elements</i> $\hat{\ } elem?$

<i>getSecondLeast2</i> $\exists Queue$ <i>elem2!</i> : \mathbb{N}
$\#queue_elements \geq 2$ <i>elem2!</i> = head (tail <i>queue_elements</i>)

<i>deleteSecondLeast2</i> $\Delta Queue$
$\#queue_elements \geq 2$ <i>queue_elements'</i> = head <i>queue_elements</i> $\hat{\ }$ tail (tail <i>queue_elements</i>)

<i>moveFirstToLast</i> $\Delta Queue$
$\#queue_elements \geq 1$ <i>queue_elements'</i> = tail <i>queue_elements</i> $\hat{\ }$ head <i>queue_elements</i>

<i>top2</i> <i>top2</i> – OK \vee <i>top2</i> – FAIL

<i>top2</i> – OK $\exists Queue elem!$: \mathbb{N}
$\#queue_elements \geq 2$ <i>elem!</i> = head (tail <i>queue_elements</i>)

top2 – *FAIL*

$\exists Queue$

$r! : \text{seq } CHAR$

$\#queue_elements \leq 1$

$r! = \text{“Queue has not enough elements”}$

length

$\exists Queue$

$n! : \mathbb{N}$

$n! = \#queue_elements$