─────── MODULE *BufferStateSpace* ───────

The buffer (*i.e.*, sequence) representation of state space used in *AJupiter*. This module defines generalized *OT* functions on operation sequences.

EXTENDS *Naturals*, *SequenceUtils*

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RECURSIVE $xFormOpOps(\_, \_, \_)$ Transform *op* against an operation sequence *ops*.
$xFormOpOps(xform(\_, \_),\ op,\ ops) \triangleq$
    IF $ops = \langle\rangle$ THEN $\langle op\rangle$ Maintain and return the intermediate transformed operations.
    ELSE $\langle op\rangle \circ xFormOpOps(xform,\ xform(op,\ Head(ops)),\ Tail(ops))$

$xFormOpsOp(xform(\_, \_),\ ops,\ op) \triangleq$ Transform an operation sequence *ops* against *op*.
    LET $opX \triangleq xFormOpOps(xform,\ op,\ ops)$
    IN $[i \in 1 \mathinner{.\,.} Len(ops) \mapsto xform(ops[i],\ opX[i])]$

$xFormFull(xform(\_, \_),\ op,\ ops) \triangleq$
    $[xop \mapsto Last(xFormOpOps(xform,\ op,\ ops)),$
    $xops \mapsto xFormOpsOp(xform,\ ops,\ op)]$

$xFormShift(xform(\_, \_),\ op,\ ops,\ shift) \triangleq$ shift of *ops*
    $xFormFull(xform,\ op,\ SubSeq(ops,\ shift + 1,\ Len(ops)))$

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