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1  ---------- MODULE BufferStateSpace ----------
   The buffer (i.e., sequence) representation of state space used in AJupiter. This module defines
   generalized OT functions on operation sequences.
6  EXTENDS Naturals, Sequences
7  ----------
8  RECURSIVE xFormOpOps(_, _, _)  Transform op against an operation sequence ops.
9  xFormOpOps(xform(_, _), op, ops) ≜
10     IF ops = ⟨⟩
11      THEN op
12      ELSE xFormOpOps(xform, xform(op, Head(ops)), Tail(ops))

14 RECURSIVE xFormOpOpsX(_, _, _)  Transform op against an operation sequence ops.
15 xFormOpOpsX(xform(_, _), op, ops) ≜
16     IF ops = ⟨⟩
17      THEN ⟨op⟩  Maintain and return the intermediate transformed operations.
18      ELSE ⟨op⟩ ∘ xFormOpOpsX(xform, xform(op, Head(ops)), Tail(ops))

20 xFormOpsOp(xform(_, _), ops, op) ≜  Transform an operation sequence ops against op.
21     LET opX ≜ xFormOpOpsX(xform, op, ops)
22     IN  [i ∈ 1 .. Len(ops) ↦ xform(ops[i], opX[i])]

24 xFormShift(xform(_, _), op, ops, shift) ≜
25     LET shiftedOps ≜ SubSeq(ops, shift, Len(ops))
26     IN  [xop ↦ xFormOpOps(xform, op, shiftedOps),
27          xops ↦ xFormOpsOp(xform, shiftedOps, op)]
28 ----------

   \* Modification History
   \* Last modified Sat Jan 12 21:34:37 CST 2019 by hengxin
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