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-----MODULE_FGBoundedBuffer-----
EXTENDS Integers, Sequences, ISequences

CONSTANT N, Msg, Input
ASSUME /\ N \in Nat \ {0}
        /\ Input \in ISeq(Msg)

a(+)b == (a+b)%2*N
a(-)b == (a-b)%2*N

--algorithm FGBBuf {
    variables in = Input, out = <<>,
        buf \in [0..(N-1) -> Msg], p = 0, c = 0;

    process (Producer = "P")
    {
        p1: while (TRUE)
        {
            await p(-)c # N;
            p2: buf[p % N] := IHead(in);
            in := ITail(in);
            p3: p := p(+)1
        }
    }

    fair process (Consumer = "C")
    {
        c1: while (TRUE)
        {
            await p # c;
            c2: out := Append(out, buf[c % N]);
            c3: c := c(+)1
        }
    }
}

*****
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```