Exercise. Consider a CCS process that models a 1-place buffer, i.e., a memory cell that can contain a single value: it receives the value on channel \texttt{in}, it stores it and it delivers the value on channel \texttt{out}:

\[
C \overset{\text{def}}{=} \text{in}(x).C'(x) \\
C'(x) \overset{\text{def}}{=} \text{out}(x).C
\]

Use the $C$ process to implement

1. An (unordered) buffer with capacity 2, with the following behavior:

\[
B_2 \overset{\text{def}}{=} \text{in}(x).B_1(x) \\
B_1(x) \overset{\text{def}}{=} \text{in}(y).B_0(x, y) + \text{out}(x).B_2 \\
B_0(x, y) \overset{\text{def}}{=} \text{out}(x).B_1(y) + \text{out}(y).B_1(x)
\]

2. A FIFO buffer with capacity 2, with the following behaviour:

\[
F_2 \overset{\text{def}}{=} \text{in}(x).F_1(x) \\
F_1(x) \overset{\text{def}}{=} \text{in}(y).F_0(x, y) + \text{out}(x).F_2 \\
F_0(x, y) \overset{\text{def}}{=} \text{out}(x).F_1(y)
\]