Answer

(c) This refinement mapping maps any behavior σ of this bounded buffer algorithm to the behavior containing only stuttering steps that leave ch equal to the empty sequence.

(d) From the initial state, suppose the producer increments p. At that point, the consumer can execute its **while** loop—implying by (ii) that, under the refinement mapping, the sending of a message has already occurred. It is impossible to define such a refinement mapping that satisfies (i), since the producer has not yet chosen which message to put in the buffer.

(e) Hint: Did you realize that part (d) is true only under the assumption that the set Msg of messages contains at least two different elements? Find a refinement mapping under which the sender always sends the same message. Use TLC to check your refinement mapping.

CLOSE