```c
#define N 100                          /* number of slots in the buffer */

void producer(void)
{
    int item;
    message m;                         /* message buffer */

    while (TRUE) {
        item = produce_item( );        /* generate something to put in buffer */
        receive(consumer, &m);         /* wait for an empty to arrive */
        build_message(&m, item);       /* construct a message to send */
        send(consumer, &m);            /* send item to consumer */
    }
}

void consumer(void)
{
    int item, i;
    message m;

    for (i = 0; i < N; i++) send(producer, &m);  /* send N empties */
    while (TRUE) {
        receive(producer, &m);         /* get message containing item */
        item = extract_item(&m);       /* extract item from message */
        send(producer, &m);            /* send back empty reply */
        consume_item(item);            /* do something with the item */
    }
}
```