```
module BoundedBuffer
  op deposit(typeT), fetch(result typeT);
body
  typeT buf[n];
  int front = 1, rear = 1;
  # local operations used to simulate semaphores
  op empty(), full(), mutexD(), mutexF();
  send mutexD(); send mutexF();
  for [i = 1 to n]  # initialize empty "semaphore"
    send empty();

  proc deposit(item) {
    receive empty(); receive mutexD();
    buf[rear] = item; rear = (rear+1) mod n;
    send mutexD(); send full();
  }

  proc fetch(item) {
    receive full(); receive mutexF();
    item = buf[front]; front = (front+1) mod n;
    send mutexF(); send empty();
  }
end BoundedBuffer
```

Figure 8.12 A bounded buffer using semaphore operations.