monitor Bounded_Buffer {
    typeT buf[n];  # an array of some type T
    int front = 0,  # index of first full slot
        rear = 0; # index of first empty slot
    count = 0;  # number of full slots
    ## rear == (front + count) % n
    cond not_full, # signaled when count < n
                   not_empty; # signaled when count > 0

    procedure deposit(typeT data) {
        while (count == n) wait(not_full);
        buf[rear] = data; rear = (rear+1) % n; count++;
        signal(not_empty);
    }

    procedure fetch(typeT &result) {
        while (count == 0) wait(not_empty);
        result = buf[front]; front = (front+1) % n; count--;
        signal(not_full);
    }
}

**Figure 5.4** Monitor implementation of a bounded buffer.

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