

Monitor

The producer-consumer problem

```
1 monitor ProducerConsumer
2   condition full, empty;
3   integer count;
4
5   procedure insert(item: integer);
6   begin
7       if count = N then wait(full);
8       insert_item(item);
9       count := count + 1;
10      if count = 1 then signal(empty)
11  end;
12
13  function remove: integer;
14  begin
15      if count = 0 then wait(empty);
16      remove = remove_item;
17      count := count - 1;
18      if count = N - 1 then signal(full)
19  end;
20      count := 0;
21  end monitor;
```

```
1 procedure producer;
2 begin
3     while true do
4         begin
5             item = produce_item;
6             ProducerConsumer.insert(item)
7         end
8     end;
9
10 procedure consumer;
11 begin
12     while true do
13         begin
14             item = ProducerConsumer.remove;
15             consume_item(item)
16         end
17     end;
```