

Mutual Exclusion Without Busy Waiting

Sleep & Wakeup

```
1  #define N 100  /* number of slots in the buffer */
2  int count = 0; /* number of items in the buffer */

1  void producer(){
2      int item;
3      while(TRUE){
4          item = produce_item();
5          if(count == N)
6              sleep();
7          insert_item(item);
8          count++;
9          if(count == 1)
10             wakeup(consumer);
11     }
12 }

1  void consumer(){
2      int item;
3      while(TRUE){
4          if(count == 0)
5              sleep();
6          item = rm_item();
7          count--;
8          if(count == N - 1)
9              wakeup(producer);
10         consume_item(item);
11     }
12 }
```

Deadlock!