

Read Tanenbaum, Bos: Chapter 2.4,2.5

Exercises

1. In the producer-consumer problem, the producer goes to sleep when the buffer is full, and the consumer wakes the producer when removing an item from a full buffer.

Suppose the producer is much faster at producing than the consumer is at consuming.

- (a) Explain why there will be a large amount of context switching.
 - (b) Explain why a larger buffer won't fix the problem.
 - (c) How could you reduce the amount of context switching?
2. Here's a program with three threads. Add semaphores to the program to guarantee it will always print "ready" then "set" then "go".

```
#include <iostream.h>
#include <pthread.h>
using namespace std;

void *ready(void *u)
{
    cout << "ready" << endl;
}
void *set(void *u)
{
    cout << "set" << endl;
}
void *go(void *u)
{
    cout << "go" << endl;
}

main()
{
    pthread_t tr,ts,tg;

    pthread_create(&tr,NULL,ready,NULL);
    pthread_create(&ts,NULL,set,NULL);
    pthread_create(&tg,NULL,go,NULL);

    pthread_join(tr,NULL);
    pthread_join(ts,NULL);
    pthread_join(tg,NULL);
}
```