PThread Cheat Sheet

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```
pthread_barrier_t barrier;
pthread_barrier_init(&barrier, NULL, num_threads);

pthread_mutex_t mutex;
pthread_mutex_init(&mutex, NULL);

sem_t semaphore;
sem_init(&semaphore, NULL, inital_value);

pthread_t thread;
pthread_create(&thread, NULL, threadFunction, arg);
```

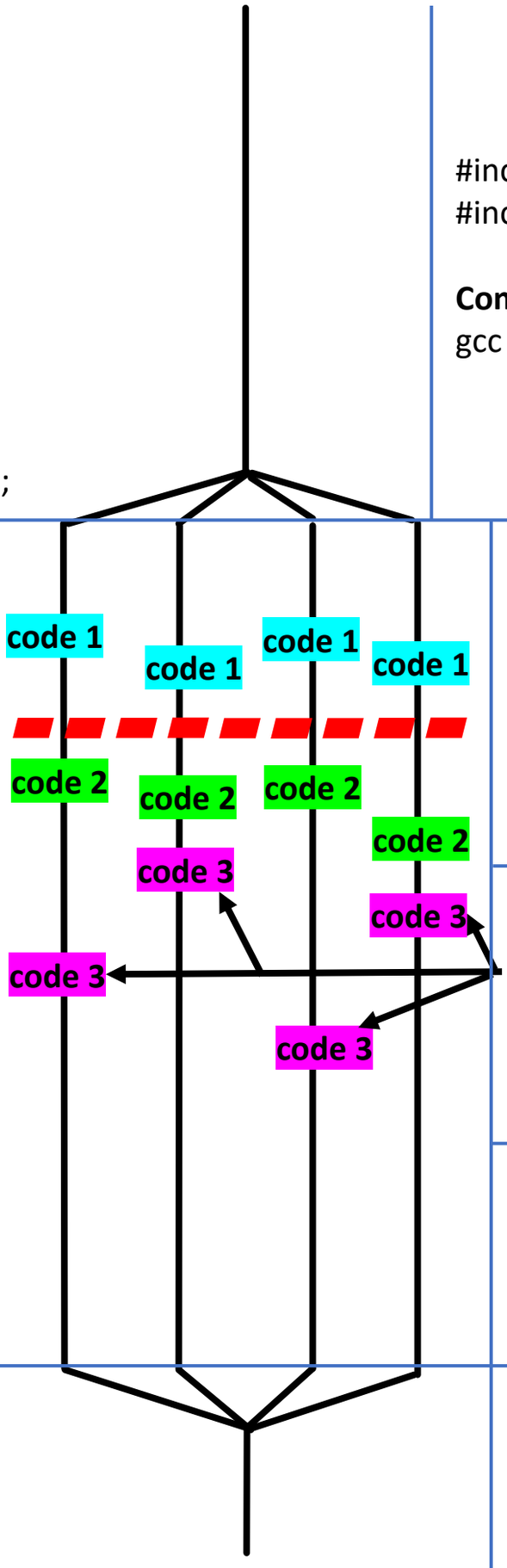
```
#include <pthread.h>
#include <semaphore.h>
```

Compiling:
gcc code.c –pthread

```
void * threadFunction(void* arg)
{
    code 1
    pthread_barrier_wait(&barrier);
    code 2

    pthread_mutex_lock(&mutex);
    code 3
    pthread_mutex_unlock(&mutex);

    sem_wait(&semaphore);
    sem_post(&semaphore);
}
```



Any **code 2** must execute **after all code 1**

CRTICAL SECTION
When **code 3** starts execution it must end before it can start on a different thread

wait: until **semaphore** > 0
semaphore--;
post:
semaphore++;

```
pthread_join(thread, NULL);
pthread_barrier_destroy(&barrier);
pthread_mutex_destroy(&mutex);
sem_destroy(&semaphore);
```

Number of cores:
cat /proc/cpuinfo