

```
mutex_t    lock;    // declare a lock
cond_t     cv;      // declare a condition variable
```

a **condition variable** (CV) is:

- queue of waiting threads

a single **lock** is associated with each CV

- see below for usage

There are two main operations that are important for CVs:

```
wait (cond_t *cv, mutex_t *lock)
```

- assumes the lock is held when wait() is called)
- puts caller to sleep + releases the lock (atomically)
- when awoken, reacquires lock before returning

```
signal (cond_t *cv)
```

- wake a single waiting thread (if  $\geq 1$  thread is waiting)
- if there is no waiting thread, just return w/o doing anything

A CV is usually **PAIRED** with some kind **state variable**

- e.g., integer (which indicates the state of the system  
that we're interested in)

```
int          state; // related "state" variable (could be an int)
```