```
1  void take_forks(int i)          /* i: philosopher number */
2  {
3    down(&mutex);                 /* enter critical region */
4    state[i] = HUNGRY;
5    test(i);                      /* try to acquire 2 forks */
6    up(&mutex);                   /* exit critical region */
7    down(&s[i]);                  /* block if forks were not acquired */
8  }
9  void put_forks(i)               /* i: philosopher number */
10 {
11   down(&mutex);                 /* enter critical region */
12   state[i] = THINKING;
13   test(LEFT);                   /* see if left neighbor can now eat */
14   test(RIGHT);                  /* see if right neighbor can now eat */
15   up(&mutex);                   /* exit critical region */
16 }
17 void test(i)                    /* i: philosopher number */
18 {
19   if(state[i] == HUNGRY && state[LEFT] != EATING && state[RIGHT] != EATING)
20         {
21       state[i] = EATING;
22       up(&s[i]);
23     }
24 }
```