```
procedure createSem(initial value, int *name) {
   get an empty semaphore descriptor;
   initialize the descriptor;
   set name to the name (index) of the descriptor;
   dispatcher();
}
procedure Psem(name) {
   find semaphore descriptor of name;
   if (value > 0)
     value = value - 1;
   else {
     insert descriptor of executing at end of blocked list;
     executing = 0;     # indicate executing is blocked
   }
   dispatcher();
}
procedure Vsem(name) {
   find semaphore descriptor of name;
   if (blocked list empty)
     value = value + 1;
   else {
     remove process descriptor from front of blocked list;
     insert the descriptor at end of ready list;
   }
   dispatcher();
}
```

Figure 6.5   Semaphore primitives for a single-processor kernel.