

```

int nr = 0,    ## RW: (nr == 0 or nw == 0) and nw <= 1
    nw = 0;
sem e = 1,    # controls entry to critical sections
    r = 0,    # used to delay readers
    w = 0;    # used to delay writers
                # at all times 0 <= (e+r+w) <= 1
int dr = 0,    # number of delayed readers
    dw = 0;    # number of delayed writers
process Reader[i = 1 to M] {
    while (true) {
        # <await (nw == 0) nr = nr+1;>
        P(e);
        if (nw > 0) { dr = dr+1; V(e); P(r); }
        nr = nr+1;
        SIGNAL;    # see text for details
        read the database;
        # <nr = nr-1;>
        P(e);
        nr = nr-1;
        SIGNAL;
    }
}
process Writer[j = 1 to N] {
    while (true) {
        # <await (nr == 0 and nw == 0) nw = nw+1;>
        P(e);
        if (nr > 0 or nw > 0) { dw = dw+1; V(e); P(w); }
        nw = nw+1;
        SIGNAL;
        write the database;
        # <nw = nw-1;>
        P(e);
        nw = nw-1;
        SIGNAL;
    }
}

```

Figure 4.12 Outline of readers and writers with passing the baton.