

```

boolean c1 initially 1;
boolean c2 initially 1;
integer (1..2) turn initially 1;

```

```

P1::while true do
begin
  noncritical section 1
  c1:=0;
  while c2=0 do
  begin
    if turn=2 then
    begin
      c1:=1;
      wait until turn=1;
      c1:=0
    end
  end;
  critical section 1
  c1:=1;
  turn:=2
end

P2::while true do
begin
  noncritical section 2
  c2:=0;
  while c1=0 do
  begin
    if turn=1 then
    begin
      c2:=1;
      wait until turn=2;
      c2:=0
    end
  end;
  critical section 2
  c2:=1;
  turn:=1
end

```

Figure 1: Dekker's mutual exclusion solution

The solution for the mutual exclusion problem, given by the Dutch mathematician Dekker, appears in Figure 1. Translate Dekker's algorithm into SPIN. Model check useful properties. Do we need fairness? How do we add it?