```
1   library ieee ;
2   use ieee.std_logic_1164.all;
3   entity botaoSincrono is
4      port (clk, b_in: in std_logic ;
5            b_out: out std_logic );
6   end botaoSincrono ;
7
8   architecture ckt of botaoSincrono is
9      type state_type is (E1, E2, E3);
10     signal y_present , y_next : state_type ;
11     begin
12        process (b_in, y_present )
13        begin
14           case y_present is
15              when E1 =>
16                 if b_in = '0' then y_next <= E1;
17                 else y_next <= E2; end if;
18              when E2 =>
19                 if b_in = '0' then y_next <= E1;
20                 else y_next <= E3; end if;
21              when E3 =>
22                 if b_in = '0' then y_next <= E1;
23                 else y_next <= E3; end if;
24           end case ;
25        end process ;
26        process (clk)
27        begin
28           if (clk'event and clk = '1') then
29              y_present <= y_next;
30           end if;
31        end process;
32        b_out <= '1' when y_present = E2 else '0';
33  end ckt;
```