the second cell either to 0 or 1. This is a more general case of the CFid, because a CFdyn can be sensitized by any read or write operation, where as a CFid can only be sensitized by writing a change (transition write operation) to the coupling (aggressor) cell. We denote a CFdyn as $< r0|w0;0 >$ where | denotes the *or* of the read and write operations, which must be done to the coupling (aggressor) cell [688]. There are four CFdyn faults: $< r0|w0;0 >$, $< r0|w0;1 >$, $< r1|w1;0 >$, and $< r1|w1;1 >$.

**Bridging Faults.** A *bridging fault* (BF) is a short circuit between two or more cells or lines. It is a bidirectional fault, so either cell/line can affect the other cell/line. A 0 or 1 state of the coupling cell causes the fault, rather than a coupling cell transition. With the *AND bridging fault* (ABF), the logical bridge value is the AND of the shorted cells/lines. The four possible ABFs are $< 0,0/0,0 >$, $< 0,1/0,0 >$, $< 1,0/0,0 >$, and $< 1,1/1,1 >$. The notation is the good machine values for cells $i$ and $j$, followed (after the slash) by their bad machine values. With the *OR bridging fault* (OBF), the logical bridge value is the OR of the shorted cells/lines. The four possible OBFs are $< 0,0/0,0 >$, $< 0,1/1,1 >$, $< 1,0/1,1 >$, and $< 1,1/1,1 >$.

**State Coupling Faults.** The *state coupling fault* (SCF) [194] is where the coupling (aggressor) cell/line $j$ is in a given state $y$ that forces the coupled (victim) cell/line $i$ into state $x$. The four SCFs are $< 0;0 >$, $< 0;1 >$, $< 1;0 >$, and $< 1;1 >$. Figure 9.9 [442] shows a Moore machine[‡] model of the state coupling fault, along with a more complete model of the transition fault [106, 107, 169].

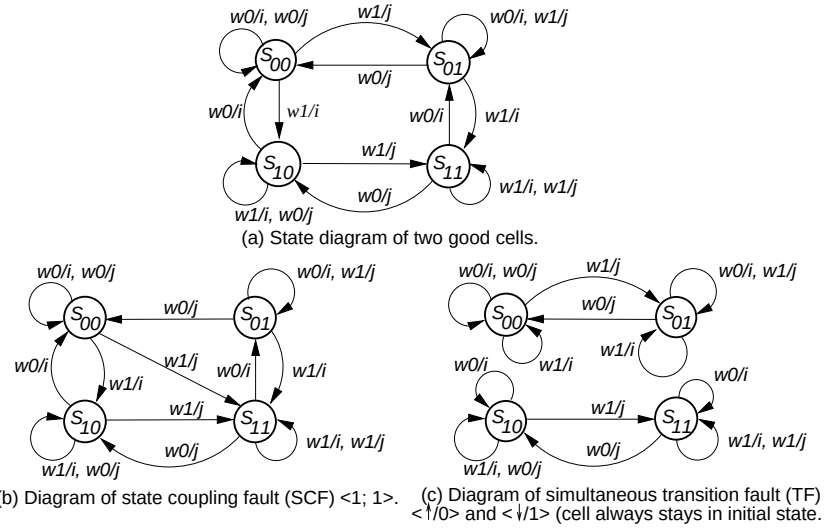


Figure 9.9: State diagram model for state coupling and transition faults.

[‡]Incorrectly identified as a *Mealy machine* in the previous printings and in some references, as pointed out by Prof. J. Patel.