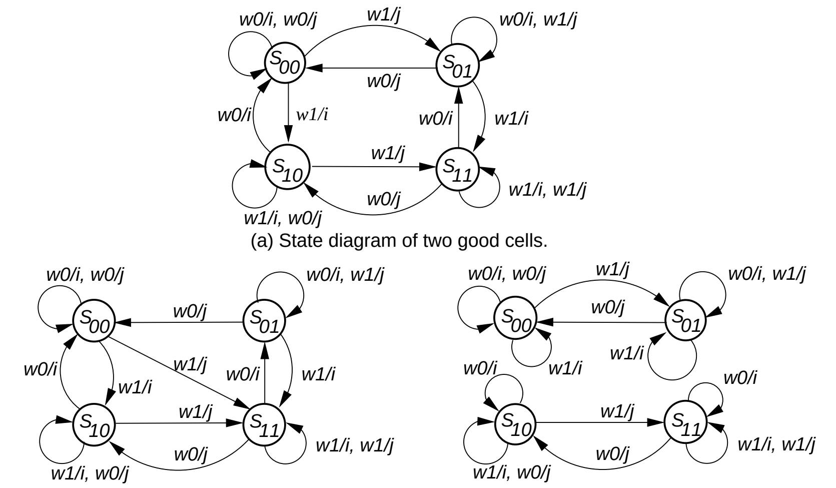
the second cell either to 0 or 1. This is a more general case of the CFid, because a CFdyn can be sensitized by any read or write operation, where as a CFid can only be sensitized by writing a change (transition write operation) to the coupling (aggressor) cell. We denote a CFdyn as $< r0|w0; 0 >$ where | 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].



(a) State diagram of two good cells.

(b) Diagram of state coupling fault (SCF) <1; 1>.

(c) Diagram of simultaneous transition fault (TF) <↑/0> and <↓/1> (cell always stays in initial state.

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.