

## The *D*-Frontier

The *D-frontier* consists of all gates whose output value is currently  $x$  but have one or more error signals (either  $D$ 's or  $\bar{D}$ 's) on their inputs. Error propagation consists of selecting one gate from the *D-frontier* and assigning values to the unspecified gate inputs so that the gate output becomes  $D$  or  $\bar{D}$ . This procedure is also referred to as the *D-drive* operation. If the *D-frontier* becomes empty during the execution of the algorithm, then no error can be propagated to a PO. Thus an empty *D-frontier* shows that backtracking should occur.

## The *J*-Frontier

To keep track of the currently unsolved line-justification problems, we use a set called the *J-frontier*, which consists of all gates whose output value is known but is not implied by its input values. Let  $c$  be the controlling value and  $i$  be the inversion of a gate on the *J-frontier*. Then the output value is  $c \oplus i$ , at least two inputs must have value  $x$ , and no input can have value  $c$ .