

The Boolean difference indicates that the output (g_9) changes if the signal g_5 changes as well. But we should know that g_9 depends not only on g_5 , but g_8 and f , so the reason that g_9 changes could be g_8 or f .

Also, g_9 is an AND gate, so $g_9|g_5=1$ would be the same as g_9 , but not for $g_9|g_5=0$. To see if g_5 is redundant, we should assert that $g_5=0$, i.e. $\text{diff} \ \& \ \sim g_5$. If $\text{wire}(g_5 \rightarrow g_9)$ stuck-at-1 is untestable, then $\text{wire}(g_5 \rightarrow g_9)$ is proved to be redundant.

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BddNode g9_1 = f & g8 & BddNode::_one;  
BddNode g9_0 = f & g8 & BddNode::_zero;  
BddNode diff = g9_1 ^ g9_0;  
  
BddNode T1 = ~g5 & diff;  
cout << T1 << endl;
```

The corresponding $T1$ is constant zero, so $\text{wire}(g_5 \rightarrow g_9)$ is indeed redundant.