

a) adding a pair

$$\begin{array}{rcl} \text{mask} & & 1\ 0\ 1\ 0\ 1\ 1 \\ \text{pair} & \text{or} & 0\ 1\ 0\ 1\ 0\ 0 \\ & & \hline & & 1\ 1\ 1\ 1\ 1\ 1 \end{array}$$

$$\begin{array}{rcl} & & 1\ 0\ 1\ 0\ 1\ 1 \\ & \text{or} & 0\ 0\ 0\ 1\ 0\ 1 \\ & & \hline & & 1\ 0\ 1\ 1\ 1\ 1 \end{array}$$

b) testing a pair

$$\begin{array}{rcl} \text{mask} & & 1\ 0\ 1\ 0\ 1\ 1 \\ \text{pair} & \text{and} & 0\ 1\ 0\ 1\ 0\ 0 \\ & & \hline & & = 0 \end{array}$$

$$\begin{array}{rcl} & & 1\ 0\ 1\ 0\ 1\ 1 \\ & \text{and} & 0\ 0\ 0\ 1\ 0\ 1 \\ & & \hline & & = 1 \end{array}$$