Homework 2 Notes

Chapter 3
1. Parallel architectures can be constructed using unfolding algorithms (Chapter 5) to minimize latch usage.
2. Cutset should be carefully selected not to destroy broadcast structure.
   e.g.

\begin{figure}
\centering
\begin{tikzpicture}
  \node (h2) at (0,0) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {$h_2$};
  \node (h1) at (2,0) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {$h_1$};
  \node (h0) at (4,0) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {$h_0$};
  \node (D) at (2,-2) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {D};
  \node (D) at (4,-2) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {D};
  \draw[->] (h2) -- (h1);
  \draw[->] (h1) -- (D);
  \draw[->] (h2) -- (D);
  \draw[->] (h0) -- (D);
  \draw[->, red] (h0) -- (4.5,0);
  \end{tikzpicture}
\caption{Wrong cutset}
\end{figure}

\begin{figure}
\centering
\begin{tikzpicture}
  \node (h2) at (0,0) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {$h_2$};
  \node (h1) at (2,0) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {$h_1$};
  \node (h0) at (4,0) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {$h_0$};
  \node (D) at (2,-2) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {D};
  \node (D) at (4,-2) [circle, draw, fill=white, inner sep=0pt, minimum size=10mm] {D};
  \draw[->] (h2) -- (h1);
  \draw[->] (h1) -- (D);
  \draw[->] (h2) -- (D);
  \draw[->] (h0) -- (D);
  \draw[->, red] (h0) -- (4.5,0);
  \end{tikzpicture}
\caption{Correct cutset}
\end{figure}

Chapter 4

Bellman-Ford algorithm described in the textbook, page 719 is not correct.
   Line 1 should be "$\ell^{(i)}(U) = \infty$"
   Line 5 should be "For k=1 to n-1"
Luckily, the wrong algorithm would produce the same result in Exercise 8.