S-38.211 Signal Processing in Communications	Stefan Werner
Solution to Exercise 2, October 15, 1997	phone: 451 2437 room: SG224
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Solution:

The shift register and state transition diagram is the same as in Lee-Messerschmitt (example 9.25) *One stage of the trellis:*



Whole trellis:



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Viterbi algorithm:











Detection:

We see that there is two possible paths through the trellis which have the same path metric!

 $\mathbf{y} = \{0, 1, 1, 0\}$ or $\mathbf{y} = \{1, 0, 1, 0\} !!!$

Here, the algorithm fail to point out one solution. If we want to have a answer to what is the transmitted sequence, we can say that most probably one of the two above!

Note:

This situation is not likely to happen in practice due to the use of higher precision!