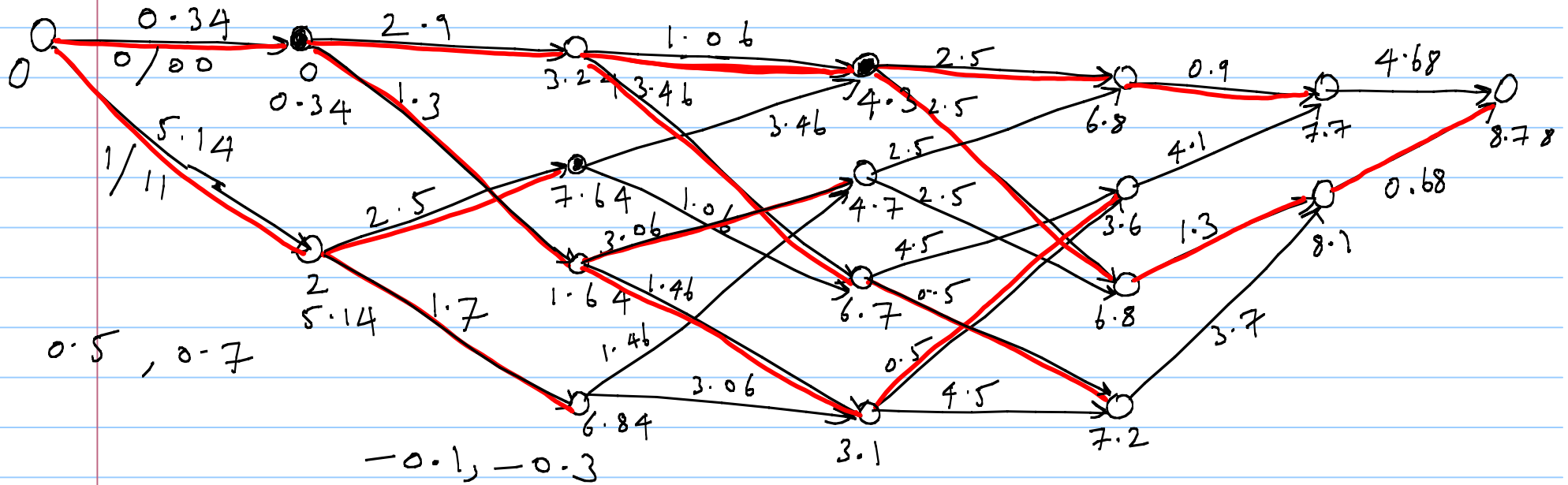


$\Sigma x:$



Survivor paths after Stage 4:

$$SP_4(0) = \{0, 0, 0, 0, 0\}$$

$$SP_4(1) = \{0, 0, 2, 3, 1\}$$

$$SP_4(2) = \{0, 0, 0, 0, 2\}$$

$$SP_4(3) = \{0, 0, 0, 2, 3\}$$

Output path:

$$SP_6(0) = \{0, 0, 0, 0, 2, 1, 0\}$$

$$\hat{u} = \{0, 0, 0, 1\}$$

Final mZ path
 $SP_{k+r}(0)$

Stage i:

$$r_i^{(0)}, r_i^{(1)}$$

1) Compute $BM(s, t)$

$$s = 0, 1, 2, \dots, 2^m - 1$$

For each s , t takes two values

2) $\{ SP_{i-1}(s), s = 0, 1, 2, \dots, 2^m - 1$

$SM_{i-1}(s) \}$: from previous computations

3) for $t = 0, 1, 2, \dots, 2^m - 1$

Find $SP_i(t)$ and $SM_i(t)$

Recursive Convolutional Encoders

So far, $G(D) = \begin{bmatrix} 1 + D + D^2 & 1 + D^2 \end{bmatrix}$

↑ Convert to systematic form
↓ by dividing throughout with $1 + D + D^2$

$$G_{(s)}(D) = \begin{bmatrix} 1 & \frac{1 + D^2}{1 + D + D^2} \end{bmatrix}$$

$$\begin{bmatrix} v^{(0)}(D) & v^{(1)}(D) \end{bmatrix} = v(D) = u(D) G_{(s)}(D)$$

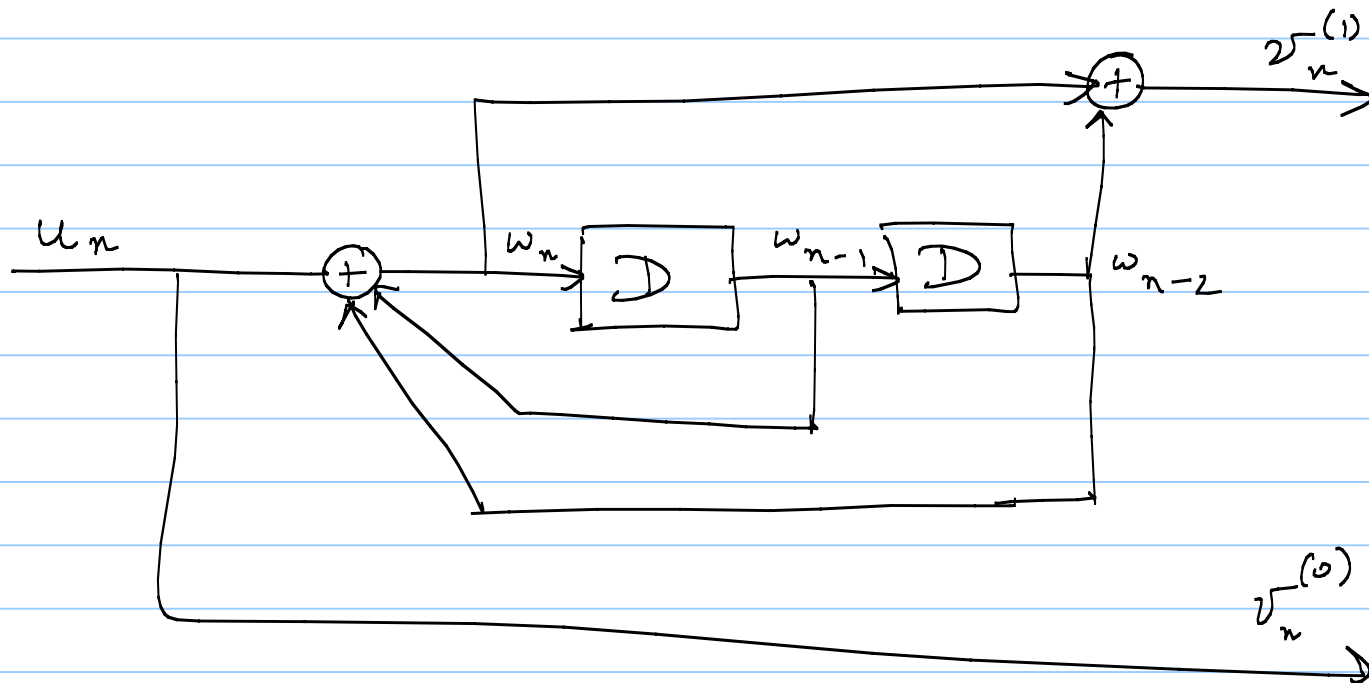
$$v^{(0)}(D) = u(D)$$

$$v^{(1)}(D) = \frac{1 + D^2}{1 + D + D^2} u(D)$$

$$(1 + D + D^2) v^{(1)}(D) = (1 + D^2) u(D)$$

In time-domain,

$$\underbrace{v_n^{(1)} + v_{n-1}^{(1)} + v_{n-2}^{(1)}} = u_n + u_{n-2}$$



$$w(D) = \frac{1}{1+D+D^2} u(D)$$

$$v(D) = \frac{1+D^2}{1+D+D^2} u(D)$$