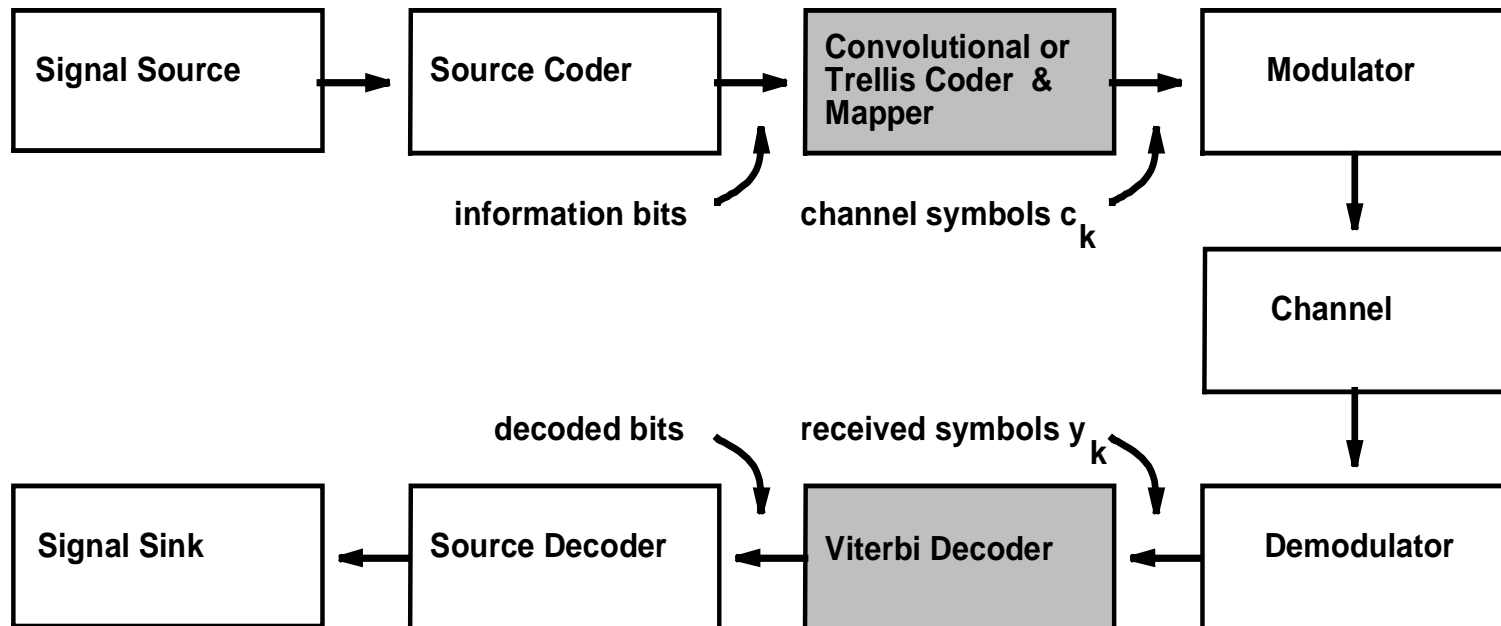


Viterbi Algorithm

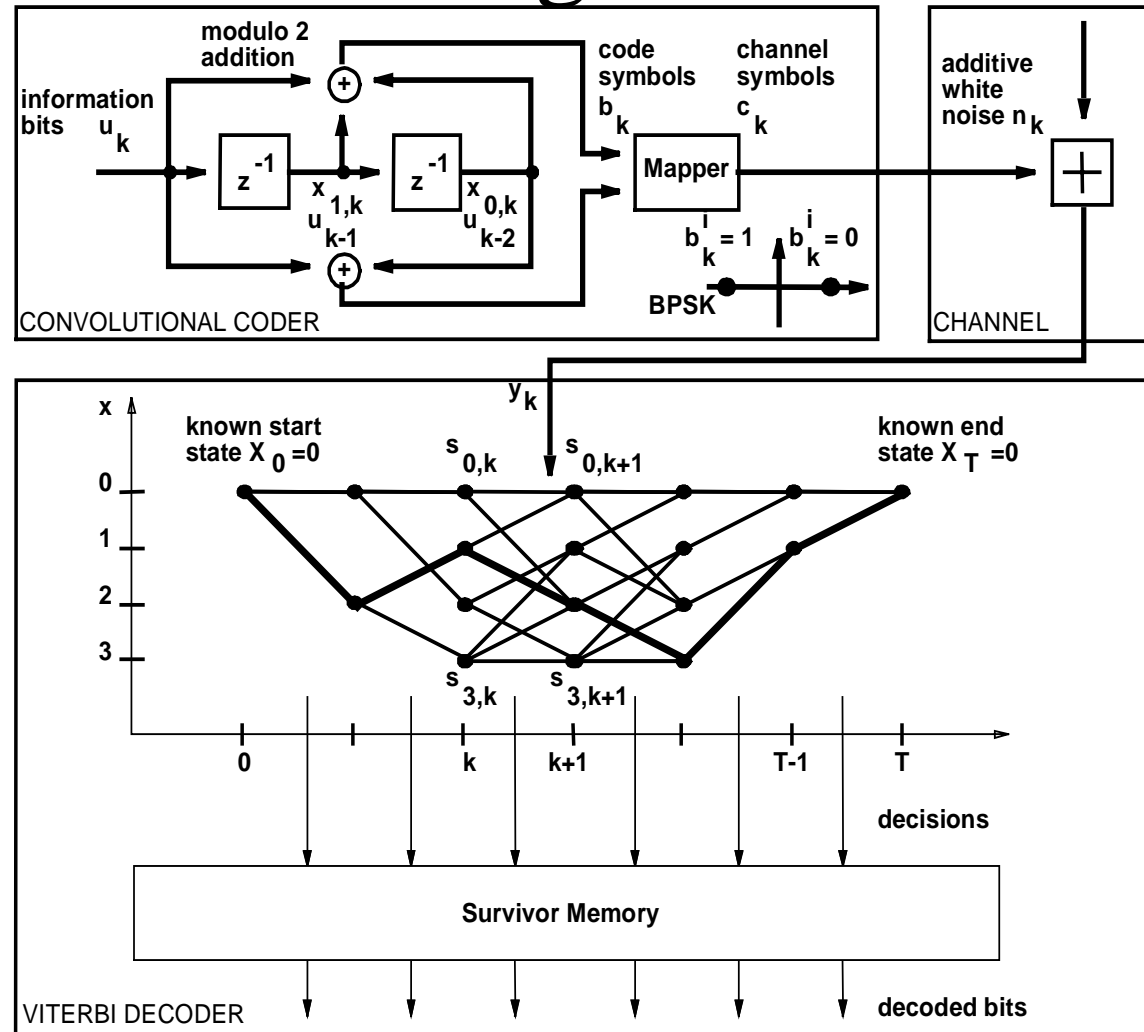
VA : Overview

- Motivation and problem statement
- ML Sequence Estimation
 - Exhaustive Search solution
 - Recursive Solution=VA
- Examples
- Implementation Issues
 - Quantitazion&Normalization
 - Architecture
- Advanced topics

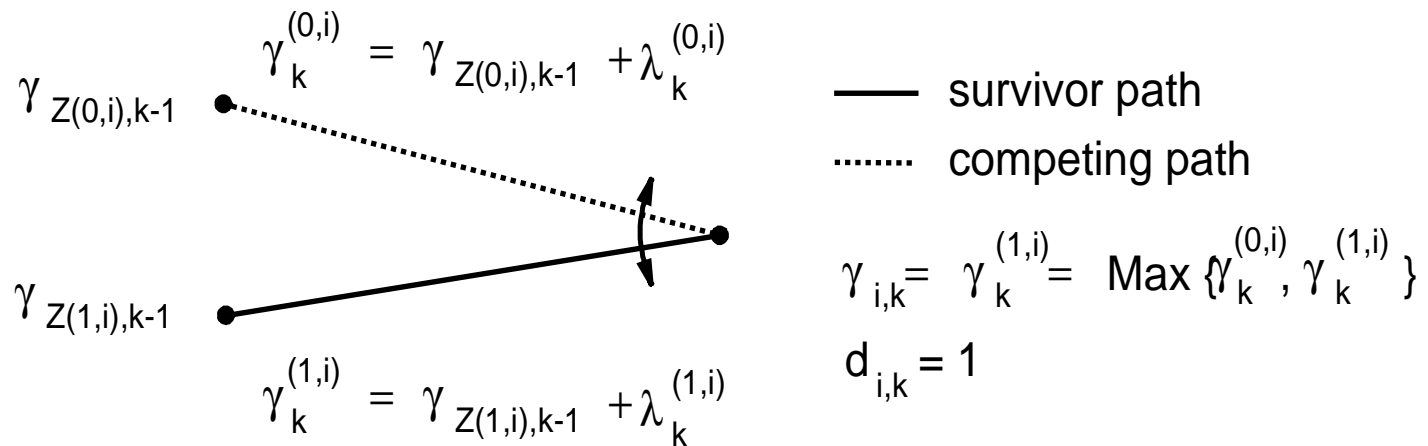
Viterbi Decoders in digital communication systems



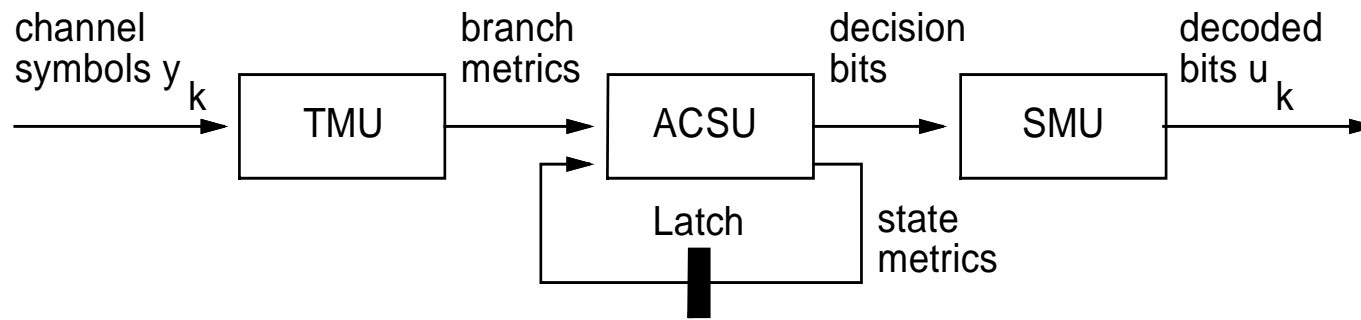
Convolutional Coder and Trellis diagram



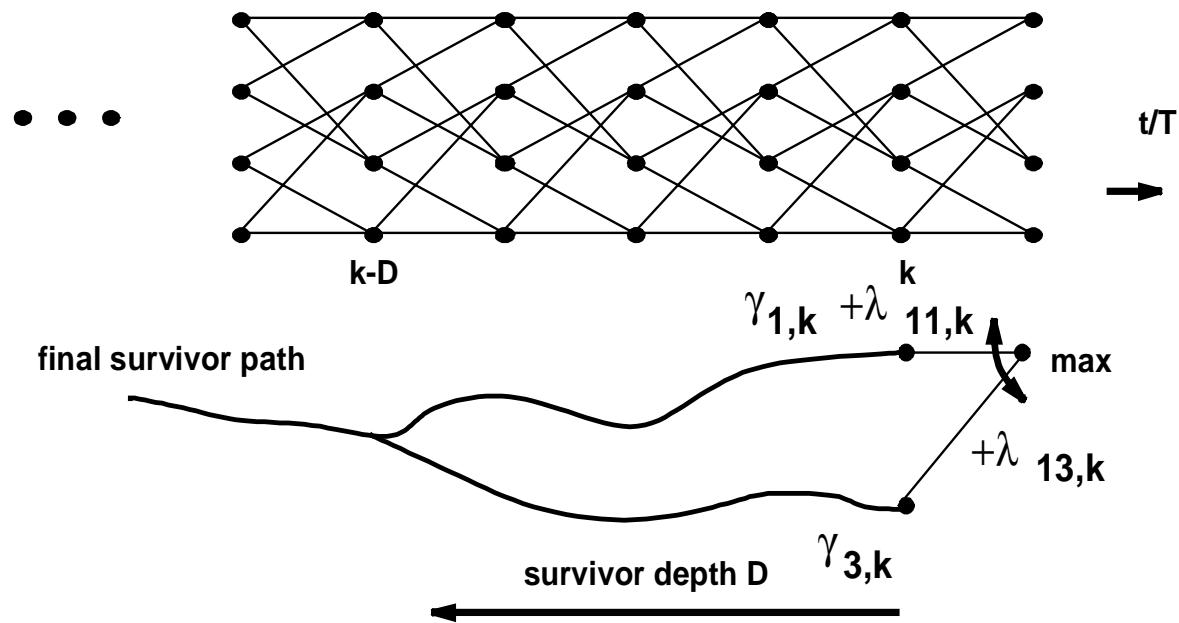
ACS recursion for $M = 2$



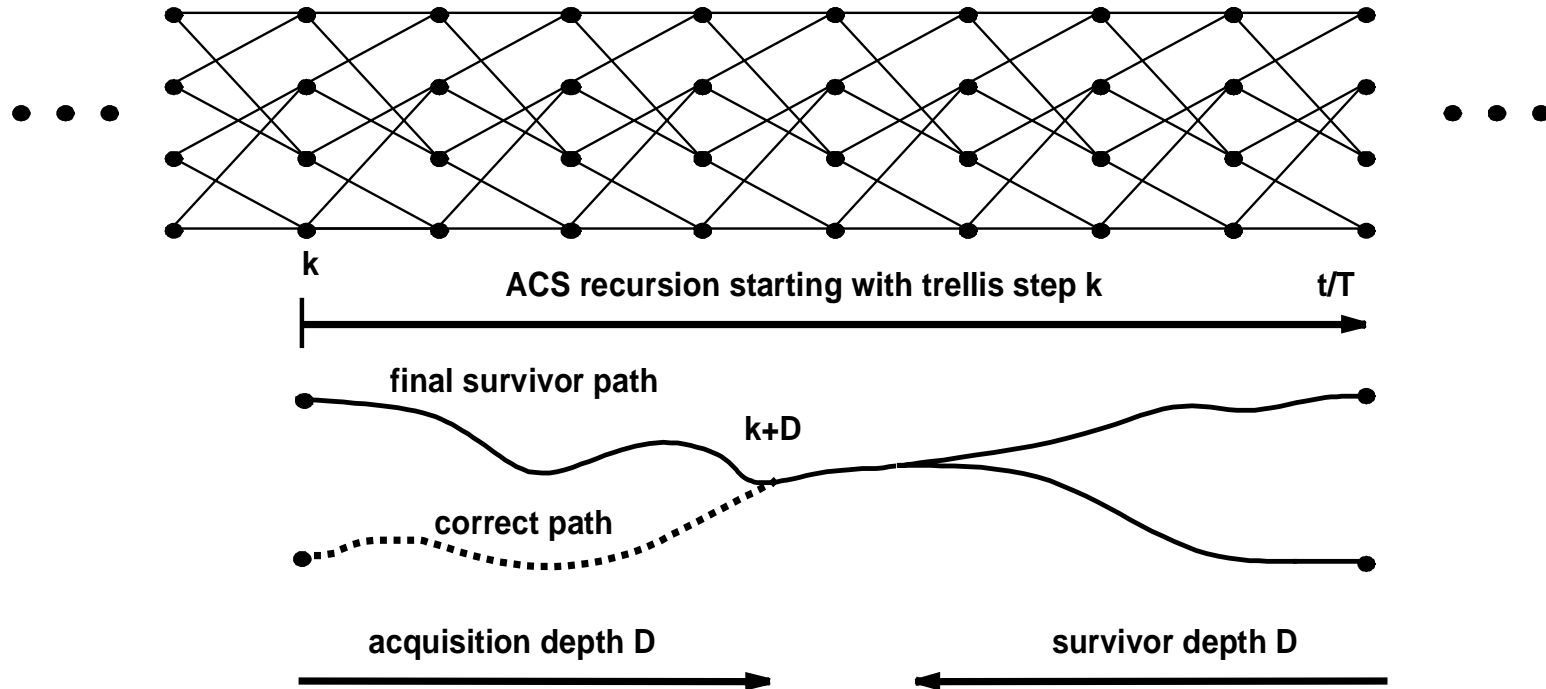
Viterbi Decoder block diagram



Path trajectories for the VA at an intermediate trellis step k

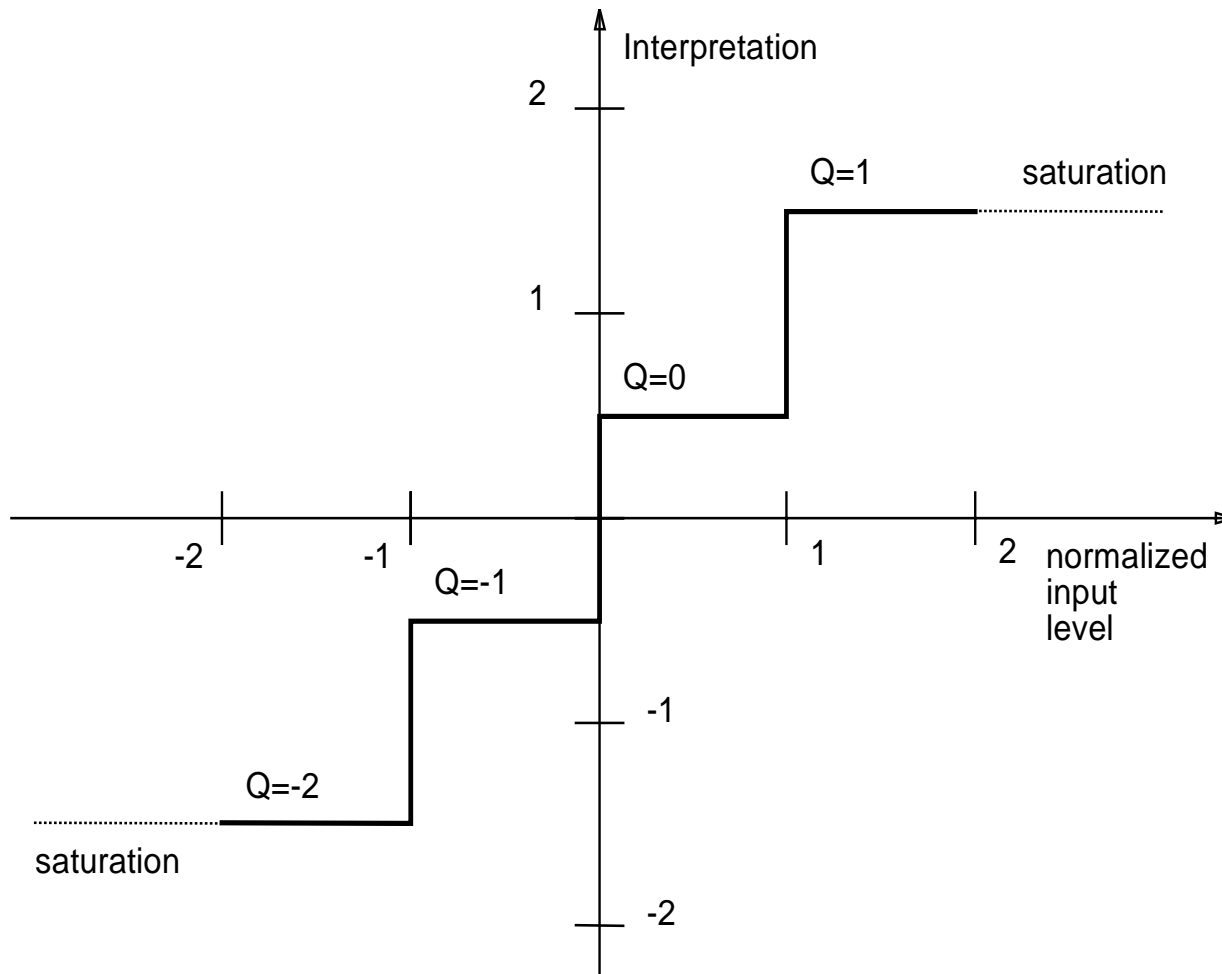


Path trajectories for acquisition



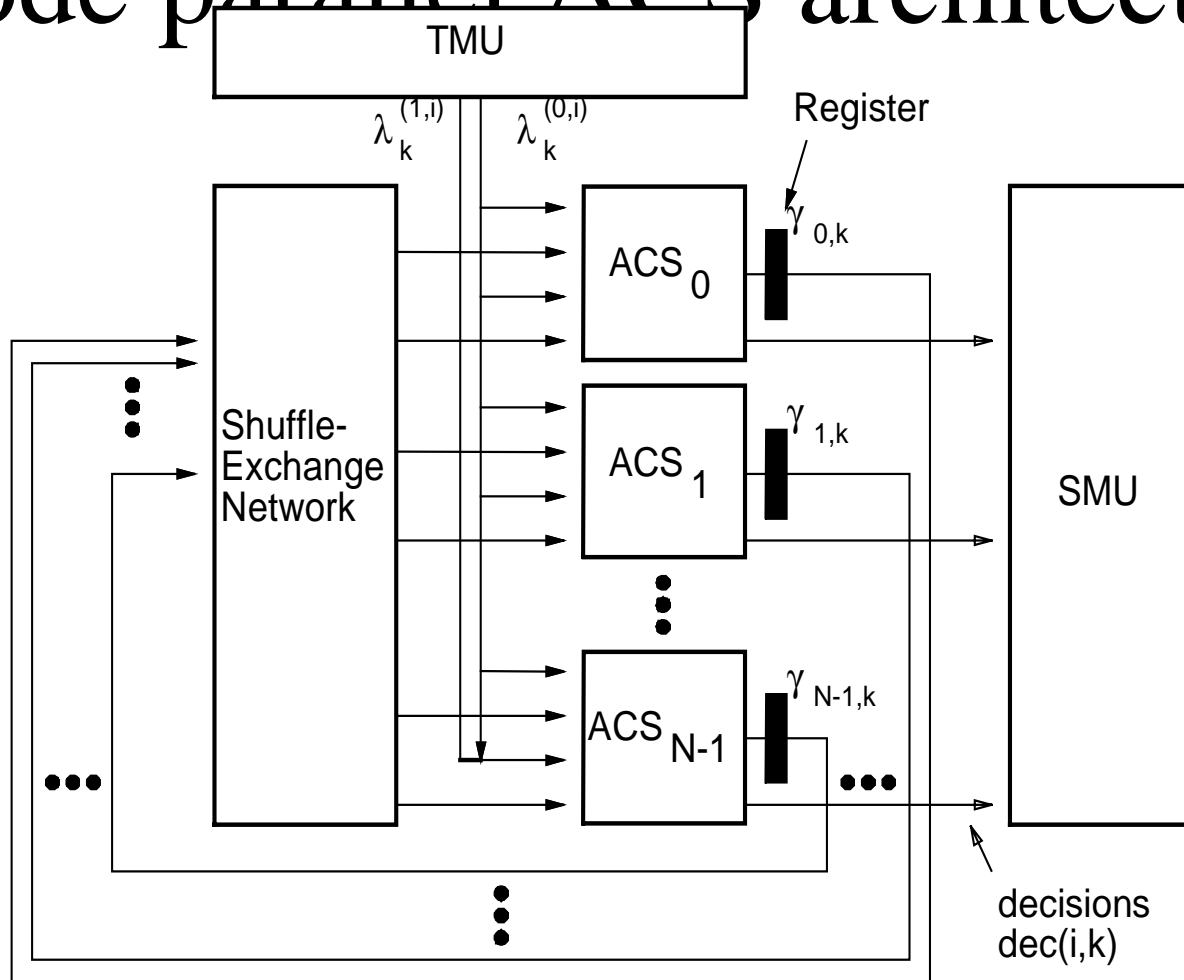
Quantization Issues

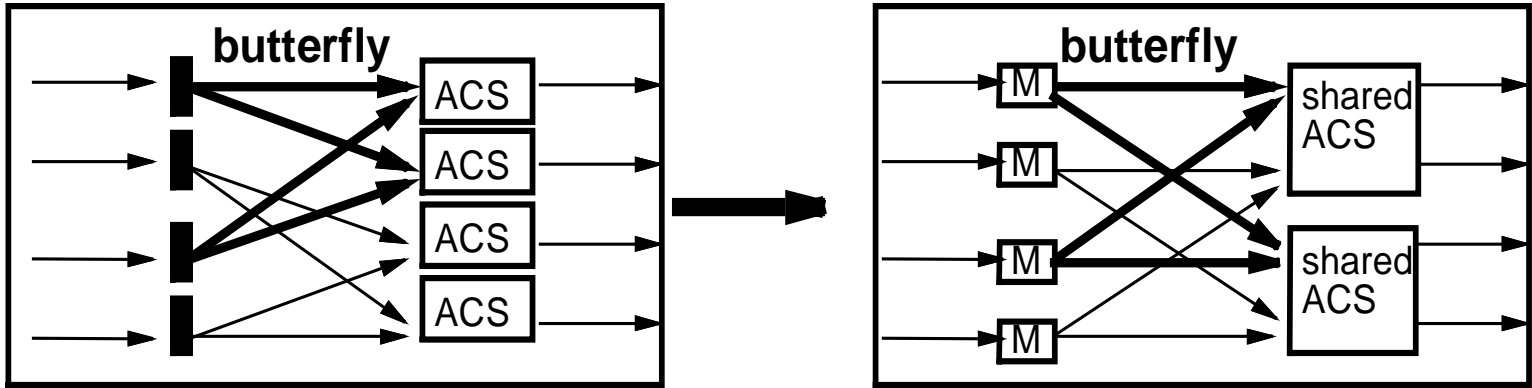
Characteristic of a 2-bit step-at-zero quantizer



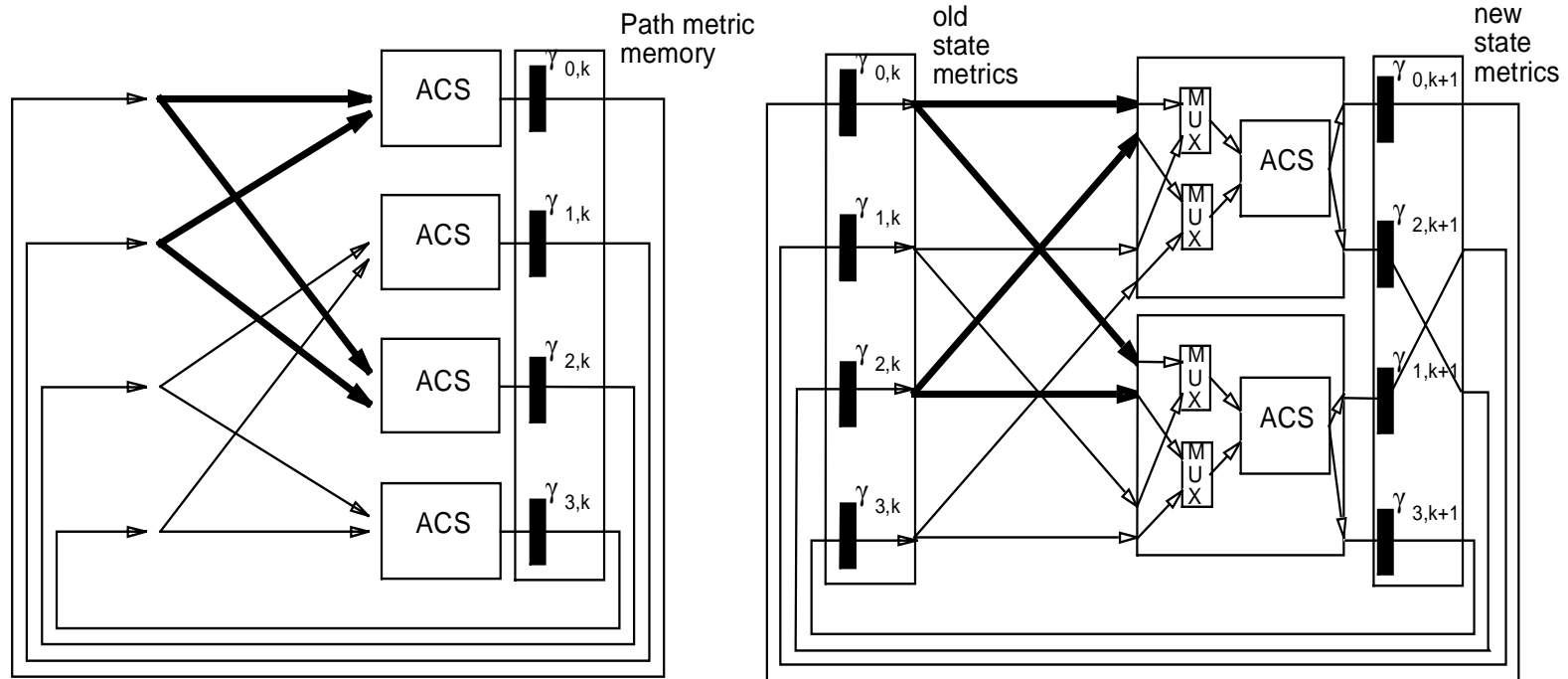
Architecture

Node parallel ACS architecture



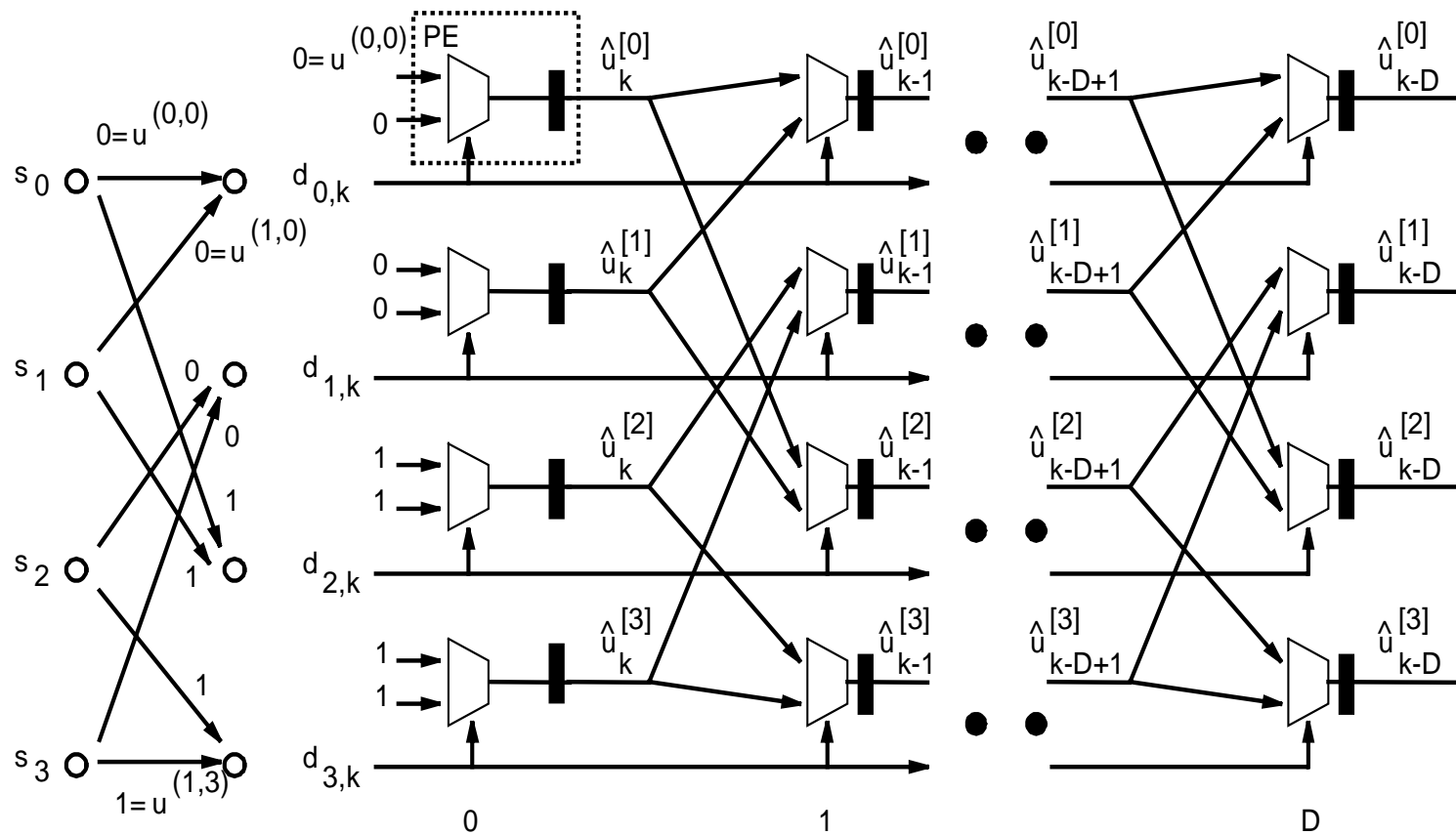


Butterfly trellis structure and resource sharing for the $K = 3$, rate 1/2 code



Survivor Memory Unit

REA hardware architecture



Decoded Sequence: 0 0 ... 0 1 0

