Discussion 1

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Question:
Please refer to page 55-57 in the slide L3_NCC. You are asked to implement Blahut-Arimoto algorithm to compute the capacity of some asymmetric channels (e.g. Z channel, where $\mathsf{P}_{Y|X} = \begin{bmatrix} 1 & 0 \\ \alpha & 1-\alpha \end{bmatrix}$) and to discuss on the following scenarios.

a) In page 57 step 0, what if we initialize $\mathsf{P}^{(0)}$ on the boundary (that is, some entries may be zero)? Will the algorithm still converge?

b) Will the algorithm still converge if we initialize on $\mathsf{Q}^{(0)}$ instead of $\mathsf{P}^{(0)}$ then proceed the iteration?