EDC 310

Practical Assigment 3

16 October 2018

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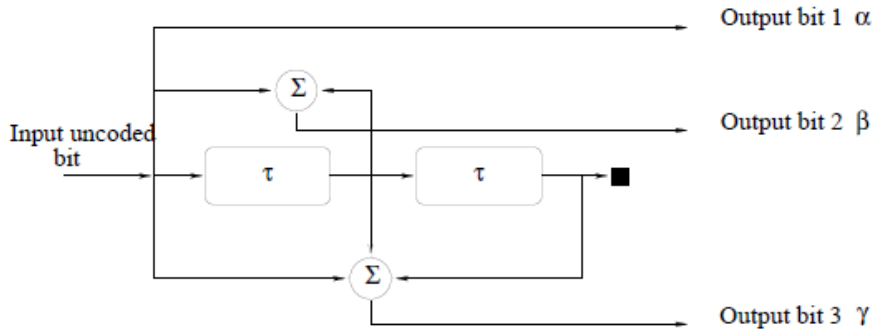
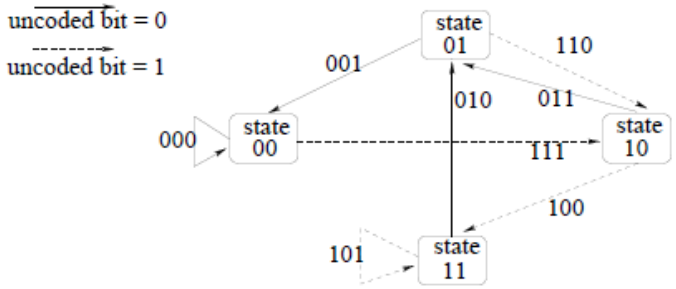
Scenario

Use the BPSK simulation platform developed in *Practical 1* to develop a simulation platform to generate uncoded data blocks of length $N_u = 100$. Use the convolutional encoder shown below to encode the uncoded data in order to yield $N_c = 300$ coded data bits.



All operations performed modulo 2



Use the Viterbi algorithm to develop a decoder in order to determine the most probable sequence of uncoded transmitted symbols. Plot the BER performance of the system and compare it to the uncoded BPSK performance in an AWGN channel.

Deliverables

- Write a report using LaTeX. Reports that are not written using LaTeX will not be marked.
- Report on your findings. Provide a detailed analysis. Be concise and use proper grammar.
- Include your code as an appendix using double columns

Instructions

- All reports must be in PDF format and be named report.pdf.
- Place the software in a folder called SOFTWARE and the report in a folder called REPORT.
- Add the folders to a zip-archive and name it studnr_EDC310_prac3.zip.
- All reports and simulation software must be e-mailed to *edc310.2018@gmail.com* no later than 16h00 on 30 October. No late submissions will be accepted.
- Submit your hard copy in class or at Eng III 7-31.

Additional Instructions

- Do not copy! The copier and the copyee (of software and/or documentation) will receive zero for both the software and the documentation. Z-e-r-o.
- For any questions of appointments email me at *u14006007@tuks.co.za*
- Make sure that you discuss the results that are obtained. This is a large part of writing a technical report.

Marking

Your report will be marked as follow:

- 50% will be awarded for the full implementation of the practical and the subsequent results in the report. For partially completed practicals, marks will be awarded as seen fit by the marker.
- 50% will be awarded for the overall report. This includes everything from the report structure, grammar and discussion of results. The discussion will be the bulk of the marks awarded.