

Approximate Joint Entropy for M Correlated Binary Sources

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Abstract—This paper proposes a method for to get an approximation of the joint entropy of M correlated binary sources; the approximation gets a linear calculation complexity in relation to the number of sources. Here, it is used a correlating model with a common binary source that through M binary symmetric channels in parallel to obtain the M correlated binary sources.

I. INTRODUCTION

This paper is organized as follows. The model system and some definitions used in this work are presented in Section II, the current method for to get the joint entropy is presented in Section III, in this line a new method for to get the joint entropy is described in Section IV. The test of the for to get the joint entropy is presented in Section V Some demonstrations need for to solve the last sections are presented in Section VIII and Section VII concludes the paper with some final remarks.

II. SYSTEM MODEL AND DEFINITIONS

The Fig. 1 show M correlated binary sources U_m , $1 \leq m \leq M | i \in \mathbb{N}$. This sources

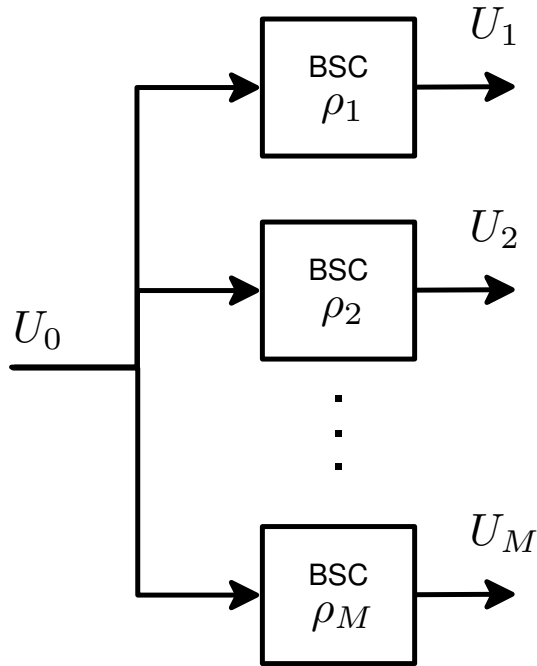


Fig. 1. M correlated binary sources.

III. JOINT ENTROPY IN CORRELATED

A. General formulation of joint entropy

B. Specific formulation of joint entropy when $\rho_i = \rho$

IV. PROPOSED JOINT ENTROPY CALCULUS

V. NUMERICAL ANALYSES

VI. DEMONSTRATIONS

VII. FINAL REMARKS AND CONCLUSIONS

In this letter, we considered joint source-channel coding of correlated sources transmitted over orthogonal

ACKNOWLEDGMENT

VIII. APPENDIX

REFERENCES

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