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Some Results On A Generalized Useful Information Measure

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Abstract:

A parametric mean length is defined as the quantity

$${}_{\alpha\beta}L_u = \frac{\alpha}{\alpha - 1} \left[1 - \sum P_i^\beta \left(\frac{u_i}{\sum u_i p_i^\beta} \right)^{\frac{1}{\alpha}} D^{-n_i(\frac{\alpha-1}{\alpha})} \right],$$

where $\alpha \neq 1, \sum p_i = 1$

this being the useful mean length of code words weighted by utilities, u_i .

Lower and upper bounds for ${}_{\alpha\beta}L_u$ are derived in terms of useful information for the incomplete power distribution, p^β .



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