PTAH inequality result

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There is an additional classic inequality to be added to the list (A) through (F), namely the maximum-entropy inequality (in logarithmic form)

$$-\sum_{i=1}^{n} p_i \log p_i \leq \log n.$$

Also, inequality (C) should be labeled "the Kullback–Leibler inequality".

Then, the labeling could be modified: the first time the PTAH inequality appears it could be labeled (P); then the maximum-entropy inequality could be labeled (G), followed by Hölder's inequality (already labeled (H)); and the statement could be "the inequalities (A) through (G) are equivalent, each is a special case of (H), and (H) is a special case of (P). However, it appears that none of the reverse implications hold."