Author’s abstract: We present an axiomatic characterization of entropies with properties of branching, continuity, and weighted additivity. We deliberately do not assume that the entropies are symmetric. The resulting entropies are generalizations of the entropies of degree \( \alpha \), including the Shannon entropy as the case \( \alpha = 1 \). Such “weighted” entropies have potential applications to the “utility of gambling” problem.

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**MSC:**
- 39B72 Systems of functional equations and inequalities
- 91B16 Utility theory
- 39B22 Functional equations for real functions
- 91A60 Probabilistic games; gambling
- 94A17 Measures of information, entropy

**Keywords:**
- weighted additivity; entropy; system of functional equations; utility of gambling; weighted utility; branching; Shannon entropy

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**References:**


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