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Convolution of Gambles and Ranked Weighted Utilities

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The concept of convolution is standard for random variables and so for money lotteries with known probabilities. It is not defined for ordinary gambles. Although the joint receipt of two gambles seems similar to convolution, in fact its expansion as a first-order gamble is not uniquely specified. Several possible definitions for that expansion are proposed and relations among them are explored in general and also under conditions of ranked weighted utility, including the two special cases of rank-dependent and gains-decomposition utility.