

From slash distributions to generalized convolutions

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Abstract: An α -slash distribution built upon a random variable X is a heavy tailed distribution corresponding to $Y = X/U^{1/\alpha}$, where U is standard uniform random variable, independent of X . We point out and explore a connection between α -slash distributions, which are gaining popularity in statistical practice, and generalized convolutions, which come up in probability theory in connection with generalizations of the standard concept of convolution of probability measures. Our theoretical results are illustrated by several examples involving standard and novel probability distributions and extremes.