Title: Generalized binomials in fractional calculus

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We consider a class of generalized binomials emerging in fractional calculus. After establishing some general properties, we focus on a particular (yet relevant) case, for which we provide several ready-for-use combinatorial identities, including an adapted version of Pascal's rule. We then investigate the associated generating functions, for which we establish a recursive, combinatorial and integral formulation. From this, we derive an asymptotic version of the Binomial Theorem. A combinatorial and asymptotic analysis of some finite sums completes the paper.

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