The character of convergence of the Cauchy product

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Abstract

In general, the Cauchy product of an absolutely convergent series and a conditionally convergent one might converge absolutely. In our talk, we provide an easy and quite general method for construction of such pairs of series, a method that is not related to the classic Pringsheim's example. Moreover, we observe that when only pairs of alternating series are considered if one of them is absolutely convergent then the character of convergence of their Cauchy product is exactly the same as the character of convergence of the second factor. We complete the remarks with a new and astonishingly short proof of the Voss Theorem on Cauchy product.