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Some regularity resuts for free convolutions of operator-valued distributions

The strong regularizing effect of free convolutions for classical, scalar-valued distributions is well-known by now, due to numerous results, starting with the pioneering work of Bercovici and Voiculescu. For obvious reasons, results of similar strength cannot be expected for operator-valued distributions. However, we will show that in some respects, free additive convolution has a regularizing effect on operator-valued distributions as well, especially in what concerns their atomic part. In this talk we will provide a sample of results in this direction and brief outlines of the ideas involved in proving them.