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Kolmogorov-type conditional probabilities among distinct context

We suggest to apply Kolomogorov's axioms of probability theory to conditional probabilities among distinct (but not necessarily disjoint and non-intertwining) contexts. Formally, this amounts to bistochastic matrices whose entries characterize the conditional probability to find some observable in one context, given an observable in another context. As the respective probabilities need not (but, depending on the physical/model realization, can) be of the Born rule type, this generalizes similar approaches to quantum probabilities by Aufféves and Grangier, which in turn are inspired by Gleason's theorem.