



TOPOLOGY SEMINAR

Simplicial distributions, convex categories and contextuality

By

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Abstract: The distribution monad D_R acts on sets and people used it to define R -convex set as an algebra over this monad. We will show (using the convolution) that the monad D_R upgraded to a monad on the category of (locally small) categories, which allows us to define R -convex categories. Our main example of R -convex category is the Kleisli category of the distribution monad D_R on simplicial sets. We will explain this example and show the relation with quantum contextuality. Later we will focus on R -convex monoids. We will define the notions of weakly invertibility, strong non-invertibility, and invertible fraction. Finally, we will show that for a simplicial scenario with a simplicial group as the outcome space, the notions above coincide with non-contextuality, strong contextuality, and contextual fraction, respectively. If there is time, we can discuss applications.

Date: Monday, October 17, 2022

Time: 13:30

Place: SA141 Mathematics Seminar Room