

# A fuzzy theory of types

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We introduce a fuzzy type theory and its calculus in order to model opinions. We begin revisiting a classical correspondence between type theories and display map categories (see [Tay99, Section 8.3]), then move to the enriched setting so that we can account for different degrees of belief in a given argument. We take special care in describing weighted pullbacks [BK75], so that substitution is properly tended to. Finally, we write new rules taking into account the fuzziness, and prove completeness and validity for such a calculus.

This is a work in progress and the first part of a project for the Adjoint School of 2022, it is joint with S. Arya, P. North, S. O'Connor, H. Reiss, and A. L. Tenório.

## References

- [BK75] Francis Borceux and G.M. Kelly. A notion of limit for enriched categories. *Bulletin of the Australian Mathematical Society*, 12(1):4972, 1975.
- [Tay99] Paul Taylor. *Practical Foundations of Mathematics*. Number v. 59 in Cambridge Studies in Advanced Mathematics. Cambridge University Press, 1999.