Graded Modal Simple Type Theory (GMSTT)

August 13, 2018

1 Introduction

2 Graded Modal Simple Type Theory (GMSTT)

3 Graded Linear Exponential Comonad

4 Double Categorical Analysis

Lemma 4.1 (Duplication in **SMC**)**.** *The absorption and distribution axioms from the definition of a graded linear exponential comonad (Definition ?) can be replaced by the following statement: for every $r \in \mathcal{R}$, both*

$$\delta_{-,r} : D(- * r) \to D(-); D(r) \qquad \delta_{-,s} : D(s * -) \to D(s); D(-)$$

*are 2-cells of the following type in **SMC**:*