

# Approximation as Differentiation notes

## 1 OVERVIEW

Some notes on the key constructions:

- Categories of families, special case of Grothendieck construction

## 2 DEFINITIONS

### 2.1 Category of families

Special case of Grothendieck construction for a functor  $F : C \rightarrow \mathbf{Cat}$ , where we consider the special case where  $F : C \rightarrow \mathbf{Set}$ . (This is a “special case” inasmuch as there is an embedding from  $\mathbf{Set}$  to  $\mathbf{Cat}$  sending each set to the corresponding discrete category.)

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