

Internship defense M2
Parisian Master of Research in Computer Science
Élimination non-singleton :
Avec les faisceaux, c'est pas faux

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Table of contents

1 Preliminary : Topoi

The starting point

Cartesian closed categories	\Leftrightarrow	Simply typed λ -calculus	\Leftrightarrow	Negative fragment of intuitionistic propositional logic
$\text{Hom}(A \times B, C)$ \simeq $\text{Hom}(A, B \rightarrow C)$		$\lambda x : A. t : A \rightarrow B$		$\frac{\Gamma, A \vdash B}{\Gamma \vdash A \rightarrow B}$

Subobject classifier

$$\text{Sub}(A) \simeq \text{Hom}(A, \Omega)$$

$\text{Sub}(A) :=$ equivalence classes of monomorphisms $X \rightarrowtail A$.

Introduces a type of proposition in the λ -calculus, as well as subobjects

- All finite limits as well. Finite colimits are recovered[maclane2012sheaves].

Formulas