

Meeting 5 Notes

March 13, 2019

1 What we did today

- Hom functors
- Baby Yoneda lemma (representing objects are unique up to isomorphism)
- Idea of a presheaf being a space probed by local models in some category
- Yoneda embedding
- Sheaf condition
- Brief characterization of a Grothendieck topos
 - An elementary topos that is cocomplete and has a small generating set (with a brief mention of Giraud's theorem)
 - A category isomorphic to one that is the left exact localization of a presheaf category
 - An left exact total category satisfying a size condition on the set of isomorphism classes of objects
- Monads and Kleisli categories (in programming) with a focus on the list monad example