

Category Theory

Exercise Sheet 7

Lecture Homepage: <https://www.math.cit.tum.de/algebra/lehre/sommersemester-2022/ss2022-category-theory/>

Exercise 1. Use the Yoneda lemma to compute the endomorphisms of some representable functors.

Exercise 2. Let G be a group. By applying the Yoneda lemma to the category BG , prove the theorem of Cayley that G admits an embedding into the symmetric group of its underlying set.

Exercise 3. Use the Yoneda lemma to answer the following question: Does there exist a non-identity natural transformation from the identity functor on the category of topological spaces to itself?