Definition (Equivalence of categories). Let **C** and **D** be categories. An equivalence between **C** and **D** is the following data:

- 1. A functor $L: \mathbb{C} \to \mathbb{D}$;
- - 2. A functor $R: \mathbf{D} \to \mathbf{C}$: 3. Natural isomorphisms un : $Id_{\mathbf{C}} \Rightarrow L \ \ R \ \text{and co} : R \ \ L \Rightarrow Id_{\mathbf{D}}$.