

**Definition** (Adjunction, Version 1). Let  $\mathbf{C}$  and  $\mathbf{D}$  be categories. An *adjunction* from  $\mathbf{C}$  to  $\mathbf{D}$  is given by the following data:

1. A functor  $L : \mathbf{C} \rightarrow \mathbf{D}$  (the *left adjoint*);
2. A functor  $R : \mathbf{D} \rightarrow \mathbf{C}$  (the *right adjoint*);
3. A natural isomorphism  $\tau : \text{Hom}_{\mathbf{D}}(L-, -) \Rightarrow \text{Hom}_{\mathbf{C}}(-, R)$

We use the notation  $L \dashv R$  to indicate that  $L$  and  $R$  form an adjunction, with  $L$  the left adjoint and  $R$  the right adjoint.