Example. The monoid $\langle \mathbb{R}, 0, + \rangle$ is isomorphic in $\textbf{Mon}$ to the monoid $\langle \mathbb{R}^<, 1, * \rangle$ as evidenced by $\lambda x. e^x$ and $\lambda x. \ln(x)$.

Example. The above also extends to an isomorphism in $\textbf{Grp}$ between $\langle \mathbb{R}, 0, +, \lambda x. -x \rangle$ and $\langle \mathbb{R}^<, 1, *, \lambda x. \frac{1}{2} \rangle$.

Example. A relation $R : A \rightarrow B$ in $\textbf{Rel}$ is an isomorphism iff both $\forall a \in A. \exists! b \in B. a R b$ and $\forall b \in B. \exists! a \in A. a R b$ hold.

Example. Two graphs are isomorphic if conceptually one is simply a “renaming” of the vertices and edges of the other.

Example. The only isomorphisms in $\textbf{Circ}$ are the identity morphisms.

Example. $\neg : \mathcal{B} \rightarrow \mathcal{B}$ is its own inverse in $\textbf{Set}$.

Example. $\neg : \langle \mathcal{B}, \top, \land \rangle \rightarrow \langle \mathcal{B}, \bot, \lor \rangle$ is the inverse of $\neg : \langle \mathcal{B}, \bot, \lor \rangle \rightarrow \langle \mathcal{B}, \top, \land \rangle$ in $\textbf{Mon}$.

Example. Negation is an endomorphism on $\langle \mathbb{Z}, 0, + \rangle$ that is its own inverse in $\textbf{Mon}$.

Example. Negation serves as an isomorphism in $\textbf{Rel}(2)$ between $\langle \mathbb{R}, \leq \rangle$ and $\langle \mathbb{R}, \geq \rangle$ in both directions.

Example. Negation does not serve as an isomorphism in $\textbf{Rel}(2)$ between $\langle \mathbb{R}, \leq \rangle$ and $\langle \mathbb{R}, > \rangle$. 