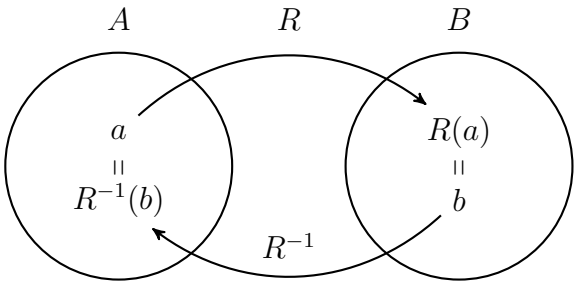
Inverse and Composition

Let R be a relation from the set A to the B, the inverse relation, denoted by R^{-1}, from B to A is the set

$$\{(b, a) \mid (a, b) \in R\}.$$

Inverse Relation



Example 3.0.10. Let $R = \{(a, 1), (a, 3), (c, 2), (c, 3), (d, 1)\}$. Then the inverse relation of R is $R^{-1} = \{(1, a), (3, a), (2, c), (3, c), (1, d)\}$.

Proposition 3.0.11. *Let $f : A \to B$. Then the inverse relation f^{-1} is a function from B to A if and only if f is a bijection.*