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Relation

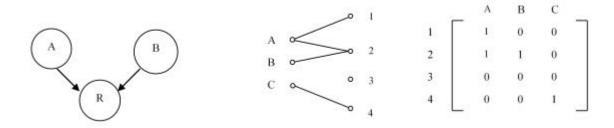
 $[C = A \times B = \{(a, b) \mid a \mid a \mid A, b \mid B\}]$

Here, $\ (C \)$ is the **Cartesian product** of sets $\ (A \)$ and $\ (B \)$. The elements of set $\ (C \)$ are ordered pairs from $\ (A \)$ and $\ (B \)$. The relation $\ (R \)$ itself is a set, which is a **subset** of $\ (C \)$.

For example, the relation describing the connection between sets (A) and (B), or the connection between $(A, B, C \setminus 1, 2, 3, 4)$, can be represented using a **graph** or a **matrix**.

Example

The relation between the sets (A, B, C) and (1, 2, 3, 4) is shown in the middle diagram. This relationship can also be written using a **matrix**, as shown in the third diagram. Note that there are 1's where the row and column sets are related. The set without a connection will have only 0's in its row.

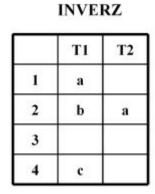


Important!

A relation is **homogeneous** if it is defined on a single set. Relations are generally **binary**, which means that the relation set contains pairs of two elements. Relations are often expressed in the form of statements. For example, "Peter and Irma are married."

A relation can also have an **inverse**. The following diagram shows how a direct relationship can be transformed into its inverse:

	T1	T2
a	1	2
b	2	
c	4	



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