

Composition of relations

In the mathematics of binary relations, the composition relations is a concept of forming a new relation $R ; S$ from two given relations R and S . The composition of relations is called relative multiplication[1] in the calculus of relations. The composition is then the relative product[2]:40 of the factor relations. Composition of functions is a special case of composition of relations.

The words uncle and aunt indicate a compound relation: for a person to be an uncle, he must be a brother of a parent (or a sister for an aunt). In algebraic logic it is said that the relation of Uncle (xUz) is the composition of relations "is a brother of" (xBy) and "is a parent of" (yPz).

$$U = BP \equiv xByPz \iff xUz.$$

Beginning with Augustus De Morgan,[3] the traditional form of reasoning with by syllogism has been subsumed by relational logical expressions and their composition.[4]