

Language B

The language B consists of statements of the forms described and explained below. These statements are composed of keywords and of the names of the relations of the respective mini world. The used keywords are „SubRelationOf“, „DisjointWith“, „EquivalentTo“, „IsSymmetric“, „IsAsymmetric“, „IsTransitive“, and „inverse“.

Statements

Every statement can either be true or false. Every statement of the language B has the form of one of the six schemes described here. Note that relations can be inverse (see the next section).

SubRelationOf-statements	
scheme:	Relation1 SubRelationOf Relation2
example:	helps SubRelationOf loves
explanation:	A SubRelationOf-statement requires two relations. Such a statement states that whenever two individuals are connected by the first relation then these two individuals are in the same direction also connected by the second relation (but not necessarily the other way round). The example above states that whenever two individuals are connected by a „helps“-relation then they are in the same direction also connected by a „loves“-relation.

IsSymmetric-statements	
scheme:	Relation IsSymmetric
example:	sees IsSymmetric
explanation:	An IsSymmetric-statement requires just one relation. Such a statement states that whenever an individual has the given relation to another individual then the second individual has the same relation to the first individual as well. The example above states that whenever an individual has a „sees“-relation to another individual then the second individual has a „sees“-relation to the first individual as well.

DisjointWith-statements	
scheme:	Relation1 DisjointWith Relation2
example:	admires DisjointWith helps
explanation:	A DisjointWith-statement requires two relations. Such a statement states that whenever two individuals are connected by the first relation then these two individuals are never in the same direction connected by the second relation. The example above states that whenever two individuals are connected by an „admires“-relation then they are never in the same direction connected by a „helps“-relation.

IsAsymmetric-statements	
scheme:	Relation IsAsymmetric
example:	admires IsAsymmetric
explanation:	An IsAsymmetric-statement requires just one relation. Such a statement states that whenever an individual has the given relation to another individual then the second individual never has the same relation to the first individual. The example above states that whenever an individual has an „admires“-relation to another individual then the second individual never has an „admires“-relation to the first individual.

EquivalentTo-statements	
scheme:	Relation1 EquivalentTo Relation2
example:	sees EquivalentTo asks
explanation:	An EquivalentTo-statement requires two relations. Such a statement states that whenever two individuals are connected by the first relation then these two individuals are in the same direction also connected by the second relation, and vice versa. The example above states that whenever two individuals are connected by a „sees“-relation then they are in the same direction also connected by an „asks“-relation and vice versa.

IsTransitive-statements	
scheme:	Relation IsTransitive
example:	asks IsTransitive
explanation:	An IsTransitive-statement requires just one relation. Such a statement states that whenever an individual has the given relation to another individual that again has the same relation to a third individual then the first individual has the same relation to the third individual as well. The example above states that whenever an individual has an „asks“-relation to another individual that has an „asks“-relation to a third individual then the first individual has an „asks“-relation to the third individual as well.

inverse-operator

Wherever a relation can occur in the statements, there can also be an inverse relation. Such inverse relations are built by the operator „inverse“ described here.

inverse-operator	
scheme:	inverse Relation
example:	inverse sees
explanation:	The inverse-operator requires just one relation. The resulting complex relation represents the inverse relation that connects the same individuals but in the inverse direction. The example above represents the inverse relation of the „sees“-relation and one could call it the „is seen by“-relation.