Definition of Functional Dependency ($A \rightarrow B$)

For some relation-scheme R, we say that a set of attributes A (A a subset of R) **functionally determines** a set of attributes B (B a subset of R) iff, for any two tuples in a legal relation on R such that t1[A] = t2[A], then it must be that t1[B] = t2[B].

Definition of Multivalued Dependency (A ->> B)

For some relation-scheme R, we say that a set of attributes A (A a subset of R) **multi determines** a set of attributes B (B a subset of R) iff, for any pair of tuples t1 and 2 in a legal relation on R such that t1[A] = t2[A], there must exist tuples t3 and t4 such that

t1[A] = t2[A] = t3[A] = t4[A] and
t3[B] = t1[B] and t4[B] = t2[B] and
t3[R-A-B] = t2[R-A-B] and t4[R-A-B] = t1[R-A-B]

Note: if t1[B] = t2[B], then this requirement is satisfied by letting t3 = t2 and t4 = t1. Likewise, if t1[R-A-B] = t2[R-A-B], then the requirement is satisfied by setting t3 = t1 and t4 = t2. Thus, this definition is only interesting when t1[B] <> t2[B] and t1[R-A-B] <> t2[R-A-B].