An equivalence data type is based on an equivalence relation E:

for any a,b,c ∈ A,

1. E(a,a)=1 (true),

2. E(a,b) ⇔ E(b,a), and

3..E(a,b)&E(b,c) ⇒ E(a,c).

Further, we will often omit the predicate truth value assuming that P(x,y) is the same as P(x,y)=1.

The pair <A,E> is called an equivalence data type, where A is a set of possible values of an attribute and E is an equivalence relation. An equivalence relation partitions set A. This data type is called a nominal scale in representative measurement theory. An equivalence data type can be presented as a class in programming languages like C++ with a Boolean member function E(x,y).