A SHORT REVIEW ON CONCEPTS OF SIMILARITY

Susanne Saminger

Department of Algebra, Stochastics and Knowledge-Based Mathematical Systems
Johannes Kepler University
A-4040 Linz, Austria
saminger@flll.uni-linz.ac.at

Managing or arranging a set of objects in real-world problems is often based on two fundamental concepts — classifying and ordering. Both concepts depend on a possibility to compare two objects of the specific universe. Examining two objects, one of them already classified and the other one to be classified, might lead to one of the following results, disregarding a possible ordering: the two objects are absolutely the same, they can be considered the same or they are nearly the same. Whereas the first and the second result can be represented as an equality or an equivalence relation on the underlying universe, the third should be represented as a relation which takes similarity into account. The aim of the talk will be to give a short overview about the principles of existing concepts for modelling similarity, starting with two linguistic phrases, which are used to express the similarity of two objects. "Object X is nearly, but not absolutely the same as Object Y" leads to a kind of weak or imperfect equality relation as an interpretation of similarity. The second approach takes into account, that similar objects are "not far away" from each other, which leads to distant measures of specific measurable properties of the objects. Afterwards different kinds of fuzzy relations will be examined regarding their applicability for representing similarity.