

Different perspectives of graded consequence: from interval-valued semantics

Soma Dutta

The Institute of Mathematical Sciences, Chennai

October 22, 2013

Abstract

The notion of graded consequence was introduced by Chakraborty in 1987, as a generalization of the two-valued notion of consequence relation in many-valued context. The basic intention was to address that if every member of a set of formulae X is true to some extent, and conclusion α is also true to some extent, then $X \models \alpha$, α follows from X is also true to some extent. This value of α follows from X is denoted by $gr(X \models \alpha)$. Here the notion ‘true to some extent’ specifies a value, which is a single point in a lattice-valued set. In this presentation we shall introduce the theory of graded consequence (GCT) in the context of intervals, where the notion of ‘true to some extent’ is interpreted by an interval of $[0, 1]$, i.e. by a set of points. Whether imprecision can be really precisified, is a matter of debate. So, interval-valued interpretations of imprecise concepts, generally gets more acceptability than the single-point precisification. This is one of the motivation for introducing the notion of graded consequence in the context of interval-valued semantics. In this presentation we shall show that apart from the above mentioned motivation, generalization of GCT in the context of intervals may have the potentiality of generating different notions of graded consequence reflecting different perspectives of decision making.