

# Abstract for the EMPG 1999 Meeting in Mannheim

## **A Mathematical Theory of Belief**

**Louis Narens**

*Department of Cognitive Sciences*

*University of California, Irvine*

*92717 Irvine, CA, USA*

lnarens@uci.edu

A theory of belief is axiomatized in terms of a qualitative binary relation that may be interpreted as “the degree of belief of the conditional event  $A|B$  is greater than the degree of belief of the conditional event  $C|D$ ”. Representation theorems establish that the qualitative axiomatization is a proper generalization of a theory of conditional probability. As a generalization, it has various interpretations, including one where uncertainty is measured in terms of two dimensions – one being probability (as usually defined) and the other a dimension called ‘ambiguity’. There are strong links between this theory of belief and the descriptive theory of probability judgments known as “Support Theory”.