

# Study of Fuzzy $D'$ -Coimplication with Respect to t-Norms and t-Conorms

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## Abstract

Fuzzy implication operators, derived from t-norms, t-conorms and fuzzy negations. The five most define of implication operators are  $(T^*, \neg)$ -implications, residual implications,  $QL$ -implications,  $D$ -implication, and  $D'$ -implication. Also, fuzzy coimplication operators, derived from t-norms, t-conorms and fuzzy negations. The four most define of coimplication operators are  $(T, N)$  coimplication, residual coimplication,  $QL$ -coimplication,  $D$ -coimplication. In this thesis, we will introduce the new definition of fuzzy  $D'$ -coimplication generated by a t-norm, t-conorm and fuzzy negation. Afterwards, we study the equivalence between  $D'$ -coimplication and fuzzy implication classes. Some examples illustrating the theoretical results are discussed as well.

**Keywords:** Fuzzy implication, Fuzzy Coimplication,  $D'$ -coimplication.