THE AGREGATION DEFICITS AND CONNECTIVES FOR (FULL) FUZZY RESOLUTION

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In this paper we study resolution truth functions for sound and complete evaluation of many valued resolution. First we translate the requirement of full resolution: from $(C \vee A, x)$ and $(B \vee \neg A, y)$ infer $(C \vee B, f(x,y))$ into the language of truth functions. We introduce a new operator, let us call it *agregation deficit* R_D, which is based on disjunctor D.

For formulation of a result on sound and complete full resolution we will investigate the *resolution truth function* $f : [0,1]^2 \to [0,1]$, which is defined by

$$f_{R_D}(x,y) = \min_{a \in [0,1]} (D(R_D(a,x), R_D(1-a,y)).$$

The properties of this function will be given.

References

[1] De Baets, B., *Coimplicators, the forgotten connectives*, Tatra Mt. Math. Publ. (1997) **12**, 229–240.

[2] Gottwald, S., *Fuzzy Sets and Fuzzy Logic*, Vieweg, Braunschweig, 1993.

[3] Hájek, P., *Metamathematics of fuzzy logic*, Kluwer, 1999.

[4] Klement, E.P.,Mesiar, R., Pap, E., *Triangular norms*, Kluwer Acad. Publ., Dordrecht, 2000.

[5] Mundici, D., Olivetti, N., *Resolution and model building in the infinite valued calculus of Lukasiewicz*, Theoretical Comp. Sci. (1998) **200**, 335–366.

[6] Smutná, D., Vojtáš, P., *New connectives for (full) fuzzy rezolution*, Proc. of ISCI 2000, Košice, Springer-Verlag, 146–151.

[7] Šabo, M., *On many valued implications*, Tatra Mountains Math. Publ. (1998) **14**, 161–167.

[8] Vojtáš, P., *Fuzzy reasoning with tunable t-operators*, J. Advanced Comp. Intelligence (1998) **2**, 121–127.

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