

# Generalized proximities

The most natural way to introduce funcoids is generalizing proximity spaces.

Let  $\delta$  be a proximity on a set  $\mathcal{U}$ . It can be extended from subsets of  $\mathcal{U}$  to filters on  $\mathcal{U}$  by the formula

$$\mathcal{X} \delta' \mathcal{Y} \Leftrightarrow \forall X \in \mathcal{X}, Y \in \mathcal{Y}: X \delta Y.$$

I've proved that there exist two functions  $\alpha: \mathfrak{F}(\mathcal{U}) \rightarrow \mathfrak{F}(\mathcal{U})$  and  $\beta: \mathfrak{F}(\mathcal{U}) \rightarrow \mathfrak{F}(\mathcal{U})$  such that

$$\mathcal{X} \delta' \mathcal{Y} \Leftrightarrow \mathcal{Y} \sqcap \alpha \mathcal{X} \neq 0^{\mathfrak{F}(\mathcal{U})} \Leftrightarrow \mathcal{X} \sqcap \beta \mathcal{Y} \neq 0^{\mathfrak{F}(\mathcal{U})}.$$