

The reloids induced by a funcoid

Every funcoid $f \in \text{FCD}(A; B)$ induces a reloid from A to B in two ways, namely intersection of *outward* relations and union of *inward* direct products of filters:

$$(\text{RLD})_{\text{out}} f \stackrel{\text{def}}{=} \bigcap \uparrow^{\text{RLD}(A; B)} [\text{GR } f];$$

$$(\text{RLD})_{\text{in}} f \stackrel{\text{def}}{=} \bigsqcup \{ \mathcal{A} \times^{\text{RLD}} \mathcal{B} \mid \mathcal{A} \in \mathfrak{F}(A), \mathcal{B} \in \mathfrak{F}(B), \mathcal{A} \times^{\text{FCD}} \mathcal{B} \sqsubseteq f \}.$$

It's simple to show that

$$(\text{RLD})_{\text{in}} f = \bigsqcup \{ a \times^{\text{RLD}} b \mid a \text{ is an atom of } \mathfrak{F}(A), b \text{ is an atom of } \mathfrak{F}(B), a \times^{\text{FCD}} b \sqsubseteq f \}.$$

I will skip some minor results.