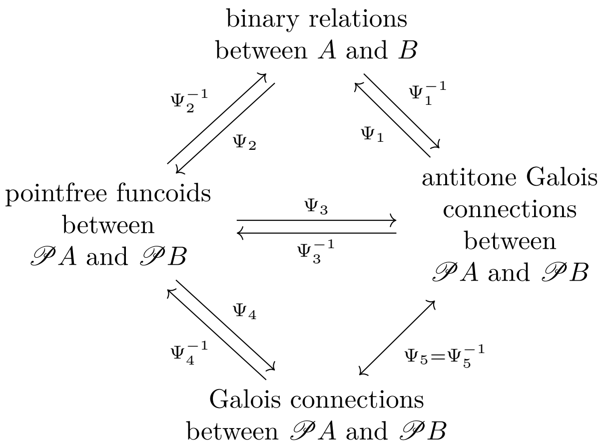
Figure 1.



Ψ_1. $f \mapsto \left\{ \frac{(x,y)}{y \in f_0\{x\}} \right\} = \left\{ \frac{(x,y)}{x \in f_1\{y\}} \right\}$
Ψ_1^{-1}. $r \mapsto \left(X \mapsto \left\{ \frac{y \in B}{\forall x \in X : x r y} \right\}, Y \mapsto \left\{ \frac{x \in A}{\forall y \in Y : x r y} \right\} \right)$
Ψ_2. $r \mapsto (\mathscr{P}A, \mathscr{P}B, \langle r \rangle^*, \langle r^{-1} \rangle^*)$
Ψ_2^{-1}. $f \mapsto \left\{ \frac{(x,y)}{\{x\}[f]\{y\}} \right\}$
Ψ_3. $f \mapsto \left(X \mapsto \bigsqcap_{x \in \mathscr{T} X \setminus \{\bot\}} \langle f \rangle x, Y \mapsto \bigsqcap_{y \in \mathscr{T} Y \setminus \{\bot\}} \langle f^{-1} \rangle y \right) =$
$\left(X \mapsto \bigsqcap_{x \in X} \langle f \rangle \{x\}, Y \mapsto \bigsqcap_{y \in Y} \langle f^{-1} \rangle \{y\} \right)$
Ψ_3^{-1}. $f \mapsto \left(\mathscr{P}A, \mathscr{P}B, X \mapsto \bigsqcup_{x \in \mathscr{T} X \setminus \{\bot\}} f_0 x, Y \mapsto \bigsqcup_{y \in \mathscr{T} Y \setminus \{\bot\}} f_1 y \right) =$
$\left(\mathscr{P}A, \mathscr{P}B, X \mapsto \bigsqcup_{x \in X} f_0\{x\}, Y \mapsto \bigsqcup_{y \in Y} f_1\{y\} \right)$
Ψ_4. $f \mapsto \left(X \mapsto \neg \bigsqcap_{x \in \mathscr{T} X \setminus \{\bot\}} \langle f \rangle x, Y \mapsto \bigsqcap_{y \in \mathscr{T} Y \setminus \{\bot\}} \langle f^{-1} \rangle \neg y \right) =$
$\left(X \mapsto \bigsqcup_{x \in \mathscr{T} X \setminus \{\bot\}} \neg \langle f \rangle x, Y \mapsto \bigsqcap_{y \in \mathscr{T} Y \setminus \{\bot\}} \langle f^{-1} \rangle \neg y \right) =$
$\left(X \mapsto \neg \bigsqcap_{x \in X} \langle f \rangle \{x\}, Y \mapsto \bigsqcap_{y \in Y} \langle f^{-1} \rangle \neg \{y\} \right) =$
$\left(X \mapsto \bigsqcup_{x \in X} \neg \langle f \rangle \{x\}, Y \mapsto \bigsqcap_{y \in Y} \langle f^{-1} \rangle \neg \{y\} \right)$
Ψ_4^{-1}. $f \mapsto \left(\mathscr{P}A, \mathscr{P}B, X \mapsto \bigsqcup_{x \in \mathscr{T} X \setminus \{\bot\}} \neg f_0 x, Y \mapsto \bigsqcup_{y \in \mathscr{T} Y \setminus \{\bot\}} f_1 \neg y \right) =$
$\left(\mathscr{P}A, \mathscr{P}B, X \mapsto \neg \bigsqcap_{x \in \mathscr{T} X \setminus \{\bot\}} f_0 x, Y \mapsto \bigsqcup_{y \in \mathscr{T} Y \setminus \{\bot\}} f_1 \neg y \right) =$
$\left(\mathscr{P}A, \mathscr{P}B, X \mapsto \bigsqcup_{x \in X} \neg f_0\{x\}, Y \mapsto \bigsqcup_{y \in Y} f_1 \neg \{y\} \right) =$
$\left(\mathscr{P}A, \mathscr{P}B, X \mapsto \neg \bigsqcap_{x \in X} f_0\{x\}, Y \mapsto \bigsqcup_{y \in Y} f_1 \neg \{y\} \right)$
$\Psi_5 = \Psi_5^{-1}$. $f \mapsto (\neg \circ f_0, f_1 \circ \neg)$

Claim: Ψ_1 maps antitone Galois connections between $\mathscr{P}A$ and $\mathscr{P}B$ into binary relations between A and B.
Proof: Obvious. ■
Claim: Ψ_1^{-1} maps binary relations between A and B into antitone Galois connections between $\mathscr{P}A$ and $\mathscr{P}B$.
Proof: We need to prove $Y \subseteq \left\{ \frac{y \in B}{\forall x \in X : x r y} \right\} \Leftrightarrow X \subseteq \left\{ \frac{x \in A}{\forall y \in Y : x r y} \right\}$. After we equivalently rewrite it:

$$\forall y \in Y \forall x \in X : x \; r \; y \Leftrightarrow \forall x \in X \forall y \in Y : x \; r \; y$$