

ZETTEL 12

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40)

$$\mathbf{a).} \quad z = (x_0)_{\gamma}^{\bigwedge_{x_3} A} = (x_0)_{\gamma}^{\{x_0, x_1, x_2, x_3, x_4\}}$$

$$\Rightarrow \text{Ausnahmemenge} = |\gamma((\{x_0, x_1, x_2, x_3, x_4\} \setminus \{x_0\})^{\gamma})| = |\gamma(\{x_1, x_2, x_3, x_4\}^{\gamma})|$$

$$= |\gamma\{x_1\}| = |\{\tilde{s}_2 x_4 x_4\}| = \{x_4\}$$

$$x_0 \notin \{x_4\} \Rightarrow z = x_0$$

$$\Rightarrow (x_0)_{\gamma}^{\bigwedge_{x_3} A} = x_0$$

$$\mathbf{b).} \quad \eta = \gamma_{x_0}^z = \iota_{x_0|x_1}^{z|\tilde{s}_2 x_4 x_4}$$

$$\mathbf{c).} \quad \omega = (x_3)_{\eta}^{|A|} = (x_3)^{\{x_0, x_1, x_2, x_3, x_4\}} \Rightarrow \text{Ausnahmemenge} = |\gamma((\{x_0, x_1, x_2, x_3, x_4\} \setminus \{x_3\})^{\gamma})| = |\gamma((\{x_0, x_1, x_2, x_4\})^{\gamma})|$$

$$= |\gamma(\{x_0, x_1\})| = |\{z, \tilde{s}_2 x_4 x_4\}| = \{z, x_4\}$$

$$x_3 \notin \{z, x_4\} \Rightarrow \omega = x_3$$

$$\Rightarrow (x_3)_{\eta}^{|A|} = x_3$$

$$\mathbf{d).} \quad \eta_{x_3}^{\omega} = \iota_{x_0|x_1|x_3}^{z|\tilde{s}_2 x_4 x_4|\omega}$$

$$\mathbf{e).} \quad \eta \circ \bigwedge_{x_3} A = \bigwedge_{x_3} \eta_{x_3}^{x_3} \circ A$$

$$\eta_{x_3}^{x_3} \Rightarrow \iota_{x_0|x_1}^{z|\tilde{s}_2 x_4 x_4}$$

$$\Rightarrow (\iota_{x_0|x_1|x_3}^{z|\tilde{s}_2 x_4 x_4|\omega}) \circ (\bigwedge_{x_3} A)$$

$$= \bigwedge_{x_3} \iota_{x_0|x_1}^{z|\tilde{s}_2 x_4 x_4} \circ A$$

$$= \bigwedge_{x_3} p_2(\iota_{x_0|x_1}^{z|\tilde{s}_2 x_4 x_4} s_2 x_0 x_1)(\iota_{x_0|x_1}^{z|\tilde{s}_2 x_4 x_4} \tilde{s}_2 x_2 s_1 x_3)$$

$$= x_0^{\vee} p_2 s_2 z \tilde{s}_2 x_4 x_4 \tilde{s}_2 x_2 s_1 x_3$$

$$\mathbf{f).} \quad \gamma \circ \bigvee_{x_0} \bigwedge_{x_3} A = \bigvee_{x_0} \bigwedge_{x_3} \gamma_{x_0}^{x_0}$$

$$\gamma_{x_0}^{x_0} \Rightarrow \iota_{x_1}^{\tilde{s}_2 x_4 x_4}$$

$$\Rightarrow (\iota_{x_0|x_1}^{z|\tilde{s}_2 x_4 x_4} \circ (\bigvee_{x_0} (\bigwedge_{x_3} A)))$$

$$= \bigvee_{x_0} \iota_{x_1}^{\tilde{s}_2 x_4 x_4} \circ (x_0^\vee p_2 s_2 z \tilde{s}_2 x_4 x_4 \tilde{s}_2 x_2 s_1 x_3)$$

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a). $(\alpha^\vee \circ \gamma)(x_j) = \begin{cases} 4 * 4 = 16 & \text{falls } j = 1 \\ 3j & \text{sonst} \end{cases}$