formodel $U : F_n : P_m$

$$\bigwedge_{p_m \in \mathcal{P}_m} P_m \subset U^m \text{ m-stellig relation}$$

$$\text{char function } \hat{P}_m u_1 \cdot\cdot u_m = \begin{cases} 1 & u_1 \cdot\cdot u_m \in P_m \\ 0 & u_1 \cdot\cdot u_m \notin P_m \end{cases}$$

$$\underset{x}{\sharp} = \begin{cases} \underset{x}{\wedge} \\ \underset{x}{\vee} \end{cases}$$

$$\sharp = \begin{cases} \wedge \\ \vee \\ \rightarrow \end{cases}$$

$$x \in X: \quad u \in U \Longrightarrow \alpha_u^x \in U^X \text{ Belegung : } \quad \alpha_x^u y = \begin{cases} \alpha y & y \neq a \\ u & y = x \end{cases}$$

$$\bigwedge \alpha \in U^X \bigwedge A \in \overline{\mathcal{P}\overline{O \cup X}} \bigvee_{\text{eind}} \hat{\alpha}\, A = \hat{A}\,\alpha \in 2 \begin{cases} \hat\alpha p_m t_1 \cdots t_m = \hat{P}_m \underbrace{\check\alpha t_1}\cdots\underbrace{\check\alpha t_m} = \begin{cases}1 & \check\alpha t_1 :\cdots: \check\alpha t_m \in P_m \\ 0 & \check\alpha t_1 :\cdots: \check\alpha t_m \notin P_m\end{cases} \\ \hat\alpha \overbrace{\underset{x}{\sharp} A} = \underset{u \in U}{\sharp} \hat\alpha^u_x A \\ \hat\alpha \underbrace{\neg A} = 1 - \hat\alpha A \\ \hat\alpha \underbrace{A \sharp B} = \underbrace{\hat\alpha A} \sharp \underbrace{\hat\alpha B} \end{cases}$$

$$\alpha \in U^X \xrightarrow{\phi} 2 \ni \phi\alpha: \quad \phi \in 2^{U^X} \ni \begin{cases} \widetilde{\overbrace{p_m t_1 \cdots t_m}}\,\alpha = \hat{P}_m \underbrace{\check\alpha t_1} \cdots \underbrace{\check\alpha t_m} \\ \tilde\neg \underbrace{A|\phi} = 1 - \phi: \quad \tilde\neg \underbrace{A|\phi}\,\alpha = 1 - \phi\alpha \\ \tilde\sharp \underbrace{A_1|\phi_1 : A_2|\phi_2} = \phi_1 \sharp \phi_2: \quad \tilde\sharp \underbrace{A_1|\phi_1 : A_2|\phi_2}\,\alpha = \phi_1 \alpha \sharp \phi_2 \alpha \\ \underset{x}{\tilde\sharp} \underbrace{A|\phi}\,\alpha = \underset{u \in U}{\sharp} \phi\left(\alpha^u_x\right) \end{cases}$$

$$\underset{\text{Satz}}{\overset{\text{Rek}}{\Longrightarrow}} \bigvee_{*}: \quad \widehat{\overbrace{S_n A_1 \cdots A_n}}\,\alpha = \tilde{S}\, \underbrace{A_1|\hat{A}_1 \cdots A_n|\hat{A}_n}\,\alpha \in 2$$

$$\begin{cases} \hat\alpha\left(p_m t_1 \cdots t_m\right) = \widetilde{\overbrace{p_m t_1 \cdots t_m}}\,\alpha = \hat{P}_m \underbrace{\check\alpha t_1} \cdots \underbrace{\check\alpha t_m} \\ \hat\alpha \bar{A} = \hat\alpha\left(\neg A\right) = \widehat{\overbrace{\neg A}}\,\alpha = \tilde\neg \underbrace{A|\hat{A}}\,\alpha = 1 - \hat{A}\alpha = 1 - \hat\alpha A \\ \hat\alpha \underbrace{A \sharp B} = \hat\alpha \underbrace{\sharp A B} = \widehat{\overbrace{\sharp A B}}\,\alpha = \tilde\sharp \underbrace{A|\hat{A} : B|\hat{B}}\,\alpha = \underbrace{\hat{A}\alpha} \sharp \underbrace{\hat{B}\alpha} = \underbrace{\hat\alpha A} \sharp \underbrace{\hat\alpha B} \\ \hat\alpha \overbrace{\underset{x}{\sharp} A} = \widehat{\overbrace{\underset{x}{\sharp} A}}\,\alpha = \underset{x}{\tilde\sharp} \underbrace{A|\hat{A}}\,\alpha = \underset{u \in U}{\sharp} \hat{A}\alpha^u_x = \underset{u \in U}{\sharp} \hat\alpha^u_x A \end{cases}$$

$$A \in \overline{\mathcal{P}\overline{O \cup X}}: \quad \alpha{:}\beta \in U^X: \quad \alpha \underset{|A|}{=} \beta \underset{*}{\Longrightarrow} \hat{\alpha} A = \hat{\beta} A$$

$$\operatorname{Ind} \mathcal{P}\overline{O \cup X} \subset \frac{A \in \overline{\mathcal{P}\overline{O \cup X}}}{\bigwedge\limits_{\alpha:\beta} *} \underset{\text{abg}}{\subset} \overline{\mathcal{P}\overline{O \cup X}}$$

$$\begin{cases} |p_m t_1 \cdot\cdot t_n| = |t_1| \cup \cdot\cdot \cup |t_m| \underset{\text{Vor}}{\Longrightarrow} \alpha \underset{|t_i|}{=} \beta \underset{\text{trg}}{\Longrightarrow} \check{\alpha} t_i = \check{\beta} t_i \underset{\text{Rek}}{\Longrightarrow} \hat{\alpha} \overbrace{p_m t_1 \cdot\cdot t_m} = \hat{p}_m \underbrace{\check{\alpha} t_1} \cdot\cdot \underbrace{\check{\alpha} t_m} = \hat{P}_m \underbrace{\check{\beta} t_1} \cdot\cdot \underbrace{\check{\beta} t_m} = \hat{\beta} \overbrace{p_m t_1 \cdot\cdot t_m} \\ |\bar{A}| = |A| \underset{\text{Vor}}{\Longrightarrow} \alpha \underset{|A|}{=} \beta \underset{\text{Ind}}{\Longrightarrow} \hat{\alpha} A = \hat{\beta} A \Longrightarrow \hat{\alpha} \bar{A} = 1 - \hat{\alpha} A = 1 - \hat{\beta} A = \hat{\beta} \bar{A} \\ |A_1 \sharp A_2| = |A_1| \cup |A_2| \underset{\text{Vor}}{\Longrightarrow} \alpha \underset{|A_i|}{=} \beta \underset{\text{Ind}}{\Longrightarrow} \hat{\alpha} A_i = \hat{\beta} A_i \Longrightarrow \hat{\alpha} \underbrace{A_1 \sharp A_2} = \underbrace{\hat{\alpha} A_1} \sharp \underbrace{\hat{\alpha} A_2} = \underbrace{\hat{\beta} A_1} \sharp \underbrace{\hat{\beta} A_2} = \hat{\beta} \underbrace{A_1 \sharp A_2} \\ |\underset{x}{\sharp} A| = |A| \llcorner x \underset{\text{Vor}}{\Longrightarrow} \alpha \underset{|A| \llcorner x}{=} \beta \underset{\text{Ind}}{\Longrightarrow} \hat{\alpha}^u_x A = \hat{\beta}^u_x A \Longrightarrow \hat{\alpha} \overbrace{\underset{x}{\sharp} A} = \underset{u}{\sharp} \underbrace{\hat{\alpha}^u_x A} = \underset{u}{\sharp} \underbrace{\hat{\beta}^u_x A} = \hat{\beta} \overbrace{\underset{x}{\sharp} A} \end{cases}$$

$$\alpha^u_x \underset{|A|}{=} \beta^u_x$$

$$|A| \ni y \neq a \Longrightarrow \alpha^u_x y = \alpha y = \beta y = \beta^u_x y$$

$$|A| \ni y = x \Longrightarrow \alpha^u_x x = u = \beta^u_x y$$