

Das vollständige System der ontisch-semiotischen Funktionen

1. Das im folgenden, quasi als "Service-Artikel", präsentierte vollständige System der ontisch-semiotischen Funktionen wurde bereits in Toth (2016a) skizziert und erstmals in meinem demnächst erscheinenden Buch "Grammatik der Stadt Paris" (Toth 2016b) vollständig und mit ontischen Modellen illustriert dargestellt. Dieses ontisch-semiotische Modell ist universell. Jedes Objekt, jedes Teilsystem und jedes System kann damit formal präzise, basierend auf der Theorie der ontisch-semiotischen Isomorphie, dargestellt werden, ob es nun ein Tisch, ein Zimmer, ein Haus, eine Stadt oder eine noch komplexere Entität sei. Es dürfte allerdings einleuchten, daß die volle Komplexität des Modelles nur bei sehr komplexen Systemen wie etwa dem Städtebau vollständig anwendbar ist, da ansonsten nur Teilsysteme des Modelles erfüllt sind.

$$2.1. C \rightarrow L = [X_\lambda, Y_z, Z_\rho] \rightarrow [Ex, Ad, In]$$

$$X_\lambda \rightarrow Ex = f(2.1)$$

$$X_\lambda \rightarrow Ex = f(2.2)$$

$$X_\lambda \rightarrow Ex = f(2.3)$$

$$X_\lambda \rightarrow Ad = f(2.1)$$

$$X_\lambda \rightarrow Ad = f(2.2)$$

$$X_\lambda \rightarrow Ad = f(2.3)$$

$$X_\lambda \rightarrow In = f(2.1)$$

$$X_\lambda \rightarrow In = f(2.2)$$

$$X_\lambda \rightarrow In = f(2.3)$$

$$Y_z \rightarrow Ex = f(2.1)$$

$$Y_z \rightarrow Ex = f(2.2)$$

$$Y_Z \rightarrow Ex = f(2.3)$$

$$Y_Z \rightarrow Ad = f(2.1)$$

$$Y_Z \rightarrow Ad = f(2.2)$$

$$Y_Z \rightarrow Ad = f(2.3)$$

$$Y_Z \rightarrow In = f(2.1)$$

$$Y_Z \rightarrow In = f(2.2)$$

$$Y_Z \rightarrow In = f(2.3)$$

$$Z_\rho \rightarrow Ex = f(2.1)$$

$$Z_\rho \rightarrow Ex = f(2.2)$$

$$Z_\rho \rightarrow Ex = f(2.3)$$

$$Z_\rho \rightarrow Ad = f(2.1)$$

$$Z_\rho \rightarrow Ad = f(2.2)$$

$$Z_\rho \rightarrow Ad = f(2.3)$$

$$Z_\rho \rightarrow In = f(2.1)$$

$$Z_\rho \rightarrow In = f(2.2)$$

$$Z_\rho \rightarrow In = f(2.3)$$

$$2.2. C \rightarrow O = [X_\lambda, Y_Z, Z_\rho] \rightarrow (Koo, Sub, Sup)$$

$$X_\lambda \rightarrow Koo = f(2.1)$$

$$X_\lambda \rightarrow Koo = f(2.2)$$

$$X_\lambda \rightarrow Koo = f(2.3)$$

$$X_\lambda \rightarrow Sub = f(2.1)$$

$$X_\lambda \rightarrow Sub = f(2.2)$$

$$X_{\lambda} \rightarrow \text{Sub} = f(2.3)$$

$$X_{\lambda} \rightarrow \text{Sup} = f(2.1)$$

$$X_{\lambda} \rightarrow \text{Sup} = f(2.2)$$

$$X_{\lambda} \rightarrow \text{Sup} = f(2.3)$$

$$Y_Z \rightarrow \text{Koo} = f(2.1)$$

$$Y_Z \rightarrow \text{Koo} = f(2.2)$$

$$Y_Z \rightarrow \text{Koo} = f(2.3)$$

$$Y_Z \rightarrow \text{Sub} = f(2.1)$$

$$Y_Z \rightarrow \text{Sub} = f(2.2)$$

$$Y_Z \rightarrow \text{Sub} = f(2.3)$$

$$Y_Z \rightarrow \text{Sup} = f(2.1)$$

$$Y_Z \rightarrow \text{Sup} = f(2.2)$$

$$Y_Z \rightarrow \text{Sup} = f(2.3)$$

$$Z_{\rho} \rightarrow \text{Koo} = f(2.1)$$

$$Z_{\rho} \rightarrow \text{Koo} = f(2.2)$$

$$Z_{\rho} \rightarrow \text{Koo} = f(2.3)$$

$$Z_{\rho} \rightarrow \text{Sub} = f(2.1)$$

$$Z_{\rho} \rightarrow \text{Sub} = f(2.2)$$

$$Z_{\rho} \rightarrow \text{Sub} = f(2.3)$$

$$Z_{\rho} \rightarrow \text{Sup} = f(2.1)$$

$$Z_{\rho} \rightarrow \text{Sup} = f(2.2)$$

$$Z_{\rho} \rightarrow \text{Sup} = f(2.3)$$

$$2.3. C \rightarrow Q = [X_\lambda, Y_Z, Z_\rho] \rightarrow [\text{Adj}, \text{Subj}, \text{Transj}]$$

$$X_\lambda \rightarrow \text{Adj} = f(2.1)$$

$$X_\lambda \rightarrow \text{Adj} = f(2.2)$$

$$X_\lambda \rightarrow \text{Adj} = f(2.3)$$

$$X_\lambda \rightarrow \text{Subj} = f(2.1)$$

$$X_\lambda \rightarrow \text{Subj} = f(2.2)$$

$$X_\lambda \rightarrow \text{Subj} = f(2.3)$$

$$X_\lambda \rightarrow \text{Transj} = f(2.1)$$

$$X_\lambda \rightarrow \text{Transj} = f(2.2)$$

$$X_\lambda \rightarrow \text{Transj} = f(2.3)$$

$$Y_Z \rightarrow \text{Adj} = f(2.1)$$

$$Y_Z \rightarrow \text{Adj} = f(2.2)$$

$$Y_Z \rightarrow \text{Adj} = f(2.3)$$

$$Y_Z \rightarrow \text{Subj} = f(2.1)$$

$$Y_Z \rightarrow \text{Subj} = f(2.2)$$

$$Y_Z \rightarrow \text{Subj} = f(2.3)$$

$$Y_Z \rightarrow \text{Transj} = f(2.1)$$

$$Y_Z \rightarrow \text{Transj} = f(2.2)$$

$$Y_Z \rightarrow \text{Transj} = f(2.3)$$

$$Z_\rho \rightarrow \text{Adj} = f(2.1)$$

$$Z_\rho \rightarrow \text{Adj} = f(2.2)$$

$$Z_\rho \rightarrow \text{Adj} = f(2.3)$$

$$Z_{\rho} \rightarrow \text{Subj} = f(2.1)$$

$$Z_{\rho} \rightarrow \text{Subj} = f(2.2)$$

$$Z_{\rho} \rightarrow \text{Subj} = f(2.3)$$

$$Z_{\rho} \rightarrow \text{Transj} = f(2.1)$$

$$Z_{\rho} \rightarrow \text{Transj} = f(2.2)$$

$$Z_{\rho} \rightarrow \text{Transj} = f(2.3)$$

$$2.4. C \rightarrow R^* = [X_{\lambda}, Y_Z, Z_{\rho}] \rightarrow [\text{Ad}, \text{Adj}, \text{Ex}]$$

$$X_{\lambda} \rightarrow \text{Ad} = f(2.1)$$

$$X_{\lambda} \rightarrow \text{Ad} = f(2.2)$$

$$X_{\lambda} \rightarrow \text{Ad} = f(2.3)$$

$$X_{\lambda} \rightarrow \text{Adj} = f(2.1)$$

$$X_{\lambda} \rightarrow \text{Adj} = f(2.2)$$

$$X_{\lambda} \rightarrow \text{Adj} = f(2.3)$$

$$X_{\lambda} \rightarrow \text{Ex} = f(2.1)$$

$$X_{\lambda} \rightarrow \text{Ex} = f(2.2)$$

$$X_{\lambda} \rightarrow \text{Ex} = f(2.3)$$

$$Y_Z \rightarrow \text{Ad} = f(2.1)$$

$$Y_Z \rightarrow \text{Ad} = f(2.2)$$

$$Y_Z \rightarrow \text{Ad} = f(2.3)$$

$$Y_Z \rightarrow \text{Adj} = f(2.1)$$

$$Y_Z \rightarrow \text{Adj} = f(2.2)$$

$$Y_Z \rightarrow \text{Adj} = f(2.3)$$

$$Y_Z \rightarrow Ex = f(2.1)$$

$$Y_Z \rightarrow Ex = f(2.2)$$

$$Y_Z \rightarrow Ex = f(2.3)$$

$$Z_\rho \rightarrow Ad = f(2.1)$$

$$Z_\rho \rightarrow Ad = f(2.2)$$

$$Z_\rho \rightarrow Ad = f(2.3)$$

$$Z_\rho \rightarrow Adj = f(2.1)$$

$$Z_\rho \rightarrow Adj = f(2.2)$$

$$Z_\rho \rightarrow Adj = f(2.3)$$

$$Z_\rho \rightarrow Ex = f(2.1)$$

$$Z_\rho \rightarrow Ex = f(2.2)$$

$$Z_\rho \rightarrow Ex = f(2.3)$$

$$2.5. C \rightarrow P = [X_\lambda, Y_Z, Z_\rho] \rightarrow (PP, PC, CP, CC)$$

$$X_\lambda \rightarrow PP = f(2.1)$$

$$X_\lambda \rightarrow PP = f(2.2)$$

$$X_\lambda \rightarrow PP = f(2.3)$$

$$X_\lambda \rightarrow PC = f(2.1)$$

$$X_\lambda \rightarrow PC = f(2.2)$$

$$X_\lambda \rightarrow PC = f(2.3)$$

$$X_\lambda \rightarrow CP = f(2.1)$$

$$X_\lambda \rightarrow CP = f(2.2)$$

$$X_\lambda \rightarrow CP = f(2.3)$$

$$X_\lambda \rightarrow CC = f(2.1)$$

$$X_\lambda \rightarrow CC = f(2.2)$$

$$X_\lambda \rightarrow CC = f(2.3)$$

$$Y_Z \rightarrow PP = f(2.1)$$

$$Y_Z \rightarrow PP = f(2.2)$$

$$Y_Z \rightarrow PP = f(2.3)$$

$$Y_Z \rightarrow PC = f(2.1)$$

$$Y_Z \rightarrow PC = f(2.2)$$

$$Y_Z \rightarrow PC = f(2.3)$$

$$Y_Z \rightarrow CP = f(2.1)$$

$$Y_Z \rightarrow CP = f(2.2)$$

$$Y_Z \rightarrow CP = f(2.3)$$

$$Y_Z \rightarrow CC = f(2.1)$$

$$Y_Z \rightarrow CC = f(2.2)$$

$$Y_Z \rightarrow CC = f(2.3)$$

$$Z_\rho \rightarrow PP = f(2.1)$$

$$Z_\rho \rightarrow PP = f(2.2)$$

$$Z_\rho \rightarrow PP = f(2.3)$$

$$Z_\rho \rightarrow PC = f(2.1)$$

$$Z_\rho \rightarrow PC = f(2.2)$$

$$Z_\rho \rightarrow PC = f(2.3)$$

$$Z_\rho \rightarrow CP = f(2.1)$$

$$Z_{\rho} \rightarrow CP = f(2.2)$$

$$Z_{\rho} \rightarrow CP = f(2.3)$$

$$Z_{\rho} \rightarrow CC = f(2.1)$$

$$Z_{\rho} \rightarrow CC = f(2.2)$$

$$Z_{\rho} \rightarrow CC = f(2.3)$$

$$2.6. L \rightarrow O = [Ex, Ad, In] \rightarrow (Koo, Sub, Sup)$$

$$Ex \rightarrow Koo = f(2.1)$$

$$Ex \rightarrow Koo = f(2.2)$$

$$Ex \rightarrow Koo = f(2.3)$$

$$Ex \rightarrow Sub = f(2.1)$$

$$Ex \rightarrow Sub = f(2.2)$$

$$Ex \rightarrow Sub = f(2.3)$$

$$Ex \rightarrow Sup = f(2.1)$$

$$Ex \rightarrow Sup = f(2.2)$$

$$Ex \rightarrow Sup = f(2.3)$$

$$Ad \rightarrow Koo = f(2.1)$$

$$Ad \rightarrow Koo = f(2.2)$$

$$Ad \rightarrow Koo = f(2.3)$$

$$Ad \rightarrow Sub = f(2.1)$$

$$Ad \rightarrow Sub = f(2.2)$$

$$Ad \rightarrow Sub = f(2.3)$$

$$Ad \rightarrow Sup = f(2.1)$$

$$\text{Ad} \rightarrow \text{Sup} = f(2.2)$$

$$\text{Ad} \rightarrow \text{Sup} = f(2.3)$$

$$\text{In} \rightarrow \text{Koo} = f(2.1)$$

$$\text{In} \rightarrow \text{Koo} = f(2.2)$$

$$\text{In} \rightarrow \text{Koo} = f(2.3)$$

$$\text{In} \rightarrow \text{Sub} = f(2.1)$$

$$\text{In} \rightarrow \text{Sub} = f(2.2)$$

$$\text{In} \rightarrow \text{Sub} = f(2.3)$$

$$\text{In} \rightarrow \text{Sup} = f(2.1)$$

$$\text{In} \rightarrow \text{Sup} = f(2.2)$$

$$\text{In} \rightarrow \text{Sup} = f(2.3)$$

$$2.7. \text{L} \rightarrow \text{Q} = [\text{Ex}, \text{Ad}, \text{In}] \rightarrow [\text{Adj}, \text{Subj}, \text{Transj}]$$

$$\text{Ex} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Ex} \rightarrow \text{Adj} = f(2.2)$$

$$\text{Ex} \rightarrow \text{Adj} = f(2.3)$$

$$\text{Ex} \rightarrow \text{Subj} = f(2.1)$$

$$\text{Ex} \rightarrow \text{Subj} = f(2.2)$$

$$\text{Ex} \rightarrow \text{Subj} = f(2.3)$$

$$\text{Ex} \rightarrow \text{Transj} = f(2.1)$$

$$\text{Ex} \rightarrow \text{Transj} = f(2.2)$$

$$\text{Ex} \rightarrow \text{Transj} = f(2.3)$$

$$\text{Ad} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Ad} \rightarrow \text{Adj} = f(2.2)$$

$$\text{Ad} \rightarrow \text{Adj} = f(2.3)$$

$$\text{Ad} \rightarrow \text{Subj} = f(2.1)$$

$$\text{Ad} \rightarrow \text{Subj} = f(2.2)$$

$$\text{Ad} \rightarrow \text{Subj} = f(2.3)$$

$$\text{Ad} \rightarrow \text{Transj} = f(2.1)$$

$$\text{Ad} \rightarrow \text{Transj} = f(2.2)$$

$$\text{Ad} \rightarrow \text{Transj} = f(2.3)$$

$$\text{In} \rightarrow \text{Adj} = f(2.1)$$

$$\text{In} \rightarrow \text{Adj} = f(2.2)$$

$$\text{In} \rightarrow \text{Adj} = f(2.3)$$

$$\text{In} \rightarrow \text{Subj} = f(2.1)$$

$$\text{In} \rightarrow \text{Subj} = f(2.2)$$

$$\text{In} \rightarrow \text{Subj} = f(2.3)$$

$$\text{In} \rightarrow \text{Transj} = f(2.1)$$

$$\text{In} \rightarrow \text{Transj} = f(2.2)$$

$$\text{In} \rightarrow \text{Transj} = f(2.3)$$

$$2.8. \text{L} \rightarrow \text{R}^* = [\text{Ex}, \text{Ad}, \text{In}] \rightarrow [\text{Ad}, \text{Adj}, \text{Ex}]$$

$$\text{Ex} \rightarrow \text{Ad} = f(2.1)$$

$$\text{Ex} \rightarrow \text{Ad} = f(2.2)$$

$$\text{Ex} \rightarrow \text{Ad} = f(2.3)$$

$$\text{Ex} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Ex} \rightarrow \text{Adj} = \text{f}(2.2)$$

$$\text{Ex} \rightarrow \text{Adj} = \text{f}(2.3)$$

$$\text{Ex} \rightarrow \text{Ex} = \text{f}(2.1)$$

$$\text{Ex} \rightarrow \text{Ex} = \text{f}(2.2)$$

$$\text{Ex} \rightarrow \text{Ex} = \text{f}(2.3)$$

$$\text{Ad} \rightarrow \text{Ad} = \text{f}(2.1)$$

$$\text{Ad} \rightarrow \text{Ad} = \text{f}(2.2)$$

$$\text{Ad} \rightarrow \text{Ad} = \text{f}(2.3)$$

$$\text{Ad} \rightarrow \text{Adj} = \text{f}(2.1)$$

$$\text{Ad} \rightarrow \text{Adj} = \text{f}(2.2)$$

$$\text{Ad} \rightarrow \text{Adj} = \text{f}(2.3)$$

$$\text{Ad} \rightarrow \text{Ex} = \text{f}(2.1)$$

$$\text{Ad} \rightarrow \text{Ex} = \text{f}(2.2)$$

$$\text{Ad} \rightarrow \text{Ex} = \text{f}(2.3)$$

$$\text{In} \rightarrow \text{Ad} = \text{f}(2.1)$$

$$\text{In} \rightarrow \text{Ad} = \text{f}(2.2)$$

$$\text{In} \rightarrow \text{Ad} = \text{f}(2.3)$$

$$\text{In} \rightarrow \text{Adj} = \text{f}(2.1)$$

$$\text{In} \rightarrow \text{Adj} = \text{f}(2.2)$$

$$\text{In} \rightarrow \text{Adj} = \text{f}(2.3)$$

$$\text{In} \rightarrow \text{Ex} = \text{f}(2.1)$$

$$\text{In} \rightarrow \text{Ex} = \text{f}(2.2)$$

$$\text{In} \rightarrow \text{Ex} = f(2.3)$$

$$2.9. \text{L} \rightarrow \text{P} = [\text{Ex}, \text{Ad}, \text{In}] \rightarrow (\text{PP}, \text{PC}, \text{CP}, \text{CC})$$

$$\text{Ex} \rightarrow \text{PP} = f(2.1)$$

$$\text{Ex} \rightarrow \text{PP} = f(2.2)$$

$$\text{Ex} \rightarrow \text{PP} = f(2.3)$$

$$\text{Ex} \rightarrow \text{PC} = f(2.1)$$

$$\text{Ex} \rightarrow \text{PC} = f(2.2)$$

$$\text{Ex} \rightarrow \text{PC} = f(2.3)$$

$$\text{Ex} \rightarrow \text{CP} = f(2.1)$$

$$\text{Ex} \rightarrow \text{CP} = f(2.2)$$

$$\text{Ex} \rightarrow \text{CP} = f(2.3)$$

$$\text{Ex} \rightarrow \text{CC} = f(2.1)$$

$$\text{Ex} \rightarrow \text{CC} = f(2.2)$$

$$\text{Ex} \rightarrow \text{CC} = f(2.3)$$

$$\text{Ad} \rightarrow \text{PP} = f(2.1)$$

$$\text{Ad} \rightarrow \text{PP} = f(2.2)$$

$$\text{Ad} \rightarrow \text{PP} = f(2.3)$$

$$\text{Ad} \rightarrow \text{PC} = f(2.1)$$

$$\text{Ad} \rightarrow \text{PC} = f(2.2)$$

$$\text{Ad} \rightarrow \text{PC} = f(2.3)$$

$$\text{Ad} \rightarrow \text{CP} = f(2.1)$$

$$\text{Ad} \rightarrow \text{CP} = f(2.2)$$

$$\text{Ad} \rightarrow \text{CP} = f(2.3)$$

$$\text{Ad} \rightarrow \text{CC} = f(2.1)$$

$$\text{Ad} \rightarrow \text{CC} = f(2.2)$$

$$\text{Ad} \rightarrow \text{CC} = f(2.3)$$

$$\text{In} \rightarrow \text{PP} = f(2.1)$$

$$\text{In} \rightarrow \text{PP} = f(2.2)$$

$$\text{In} \rightarrow \text{PP} = f(2.3)$$

$$\text{In} \rightarrow \text{PC} = f(2.1)$$

$$\text{In} \rightarrow \text{PC} = f(2.2)$$

$$\text{In} \rightarrow \text{PC} = f(2.3)$$

$$\text{In} \rightarrow \text{CP} = f(2.1)$$

$$\text{In} \rightarrow \text{CP} = f(2.2)$$

$$\text{In} \rightarrow \text{CP} = f(2.3)$$

$$\text{In} \rightarrow \text{CC} = f(2.1)$$

$$\text{In} \rightarrow \text{CC} = f(2.2)$$

$$\text{In} \rightarrow \text{CC} = f(2.3)$$

$$2.10. \text{O} \rightarrow \text{Q} = (\text{Koo}, \text{Sub}, \text{Sup}) \rightarrow [\text{Adj}, \text{Subj}, \text{Transj}]$$

$$\text{Koo} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Koo} \rightarrow \text{Adj} = f(2.2)$$

$$\text{Koo} \rightarrow \text{Adj} = f(2.3)$$

$$\text{Koo} \rightarrow \text{Subj} = f(2.1)$$

$$\text{Koo} \rightarrow \text{Subj} = f(2.2)$$

$$\text{Koo} \rightarrow \text{Subj} = f(2.3)$$

$$\text{Koo} \rightarrow \text{Transj} = f(2.1)$$

$$\text{Koo} \rightarrow \text{Transj} = f(2.2)$$

$$\text{Koo} \rightarrow \text{Transj} = f(2.3)$$

$$\text{Sub} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Sub} \rightarrow \text{Adj} = f(2.2)$$

$$\text{Sub} \rightarrow \text{Adj} = f(2.3)$$

$$\text{Sub} \rightarrow \text{Subj} = f(2.1)$$

$$\text{Sub} \rightarrow \text{Subj} = f(2.2)$$

$$\text{Sub} \rightarrow \text{Subj} = f(2.3)$$

$$\text{Sub} \rightarrow \text{Transj} = f(2.1)$$

$$\text{Sub} \rightarrow \text{Transj} = f(2.2)$$

$$\text{Sub} \rightarrow \text{Transj} = f(2.3)$$

$$\text{Sup} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Sup} \rightarrow \text{Adj} = f(2.2)$$

$$\text{Sup} \rightarrow \text{Adj} = f(2.3)$$

$$\text{Sup} \rightarrow \text{Subj} = f(2.1)$$

$$\text{Sup} \rightarrow \text{Subj} = f(2.2)$$

$$\text{Sup} \rightarrow \text{Subj} = f(2.3)$$

$$\text{Sup} \rightarrow \text{Transj} = f(2.1)$$

$$\text{Sup} \rightarrow \text{Transj} = f(2.2)$$

$$\text{Sup} \rightarrow \text{Transj} = f(2.3)$$

2.11. $O \rightarrow R^* = (Koo, Sub, Sup) \rightarrow [Ad, Adj, Ex]$

$Koo \rightarrow Ad = f(2.1)$

$Koo \rightarrow Ad = f(2.2)$

$Koo \rightarrow Ad = f(2.3)$

$Koo \rightarrow Adj = f(2.1)$

$Koo \rightarrow Adj = f(2.2)$

$Koo \rightarrow Adj = f(2.3)$

$Koo \rightarrow Ex = f(2.1)$

$Koo \rightarrow Ex = f(2.2)$

$Koo \rightarrow Ex = f(2.3)$

$Sub \rightarrow Ad = f(2.1)$

$Sub \rightarrow Ad = f(2.2)$

$Sub \rightarrow Ad = f(2.3)$

$Sub \rightarrow Adj = f(2.1)$

$Sub \rightarrow Adj = f(2.2)$

$Sub \rightarrow Adj = f(2.3)$

$Sub \rightarrow Ex = f(2.1)$

$Sub \rightarrow Ex = f(2.2)$

$Sub \rightarrow Ex = f(2.3)$

$Sup \rightarrow Ad = f(2.1)$

$Sup \rightarrow Ad = f(2.2)$

$Sup \rightarrow Ad = f(2.3)$

$$\text{Sup} \rightarrow \text{Adj} = f(2.1)$$

$$\text{Sup} \rightarrow \text{Adj} = f(2.2)$$

$$\text{Sup} \rightarrow \text{Adj} = f(2.3)$$

$$\text{Sup} \rightarrow \text{Ex} = f(2.1)$$

$$\text{Sup} \rightarrow \text{Ex} = f(2.2)$$

$$\text{Sup} \rightarrow \text{Ex} = f(2.3)$$

$$2.12. \text{O} \rightarrow \text{P} = (\text{Koo}, \text{Sub}, \text{Sup}) \rightarrow (\text{PP}, \text{PC}, \text{CP}, \text{CC})$$

$$\text{Koo} \rightarrow \text{PP} = f(2.1)$$

$$\text{Koo} \rightarrow \text{PP} = f(2.2)$$

$$\text{Koo} \rightarrow \text{PP} = f(2.3)$$

$$\text{Koo} \rightarrow \text{PC} = f(2.1)$$

$$\text{Koo} \rightarrow \text{PC} = f(2.2)$$

$$\text{Koo} \rightarrow \text{PC} = f(2.3)$$

$$\text{Koo} \rightarrow \text{CP} = f(2.1)$$

$$\text{Koo} \rightarrow \text{CP} = f(2.2)$$

$$\text{Koo} \rightarrow \text{CP} = f(2.3)$$

$$\text{Koo} \rightarrow \text{CC} = f(2.1)$$

$$\text{Koo} \rightarrow \text{CC} = f(2.2)$$

$$\text{Koo} \rightarrow \text{CC} = f(2.3)$$

$$\text{Sub} \rightarrow \text{PP} = f(2.1)$$

$$\text{Sub} \rightarrow \text{PP} = f(2.2)$$

$$\text{Sub} \rightarrow \text{PP} = f(2.3)$$

$$\text{Sub} \rightarrow \text{PC} = f(2.1)$$

$$\text{Sub} \rightarrow \text{PC} = f(2.2)$$

$$\text{Sub} \rightarrow \text{PC} = f(2.3)$$

$$\text{Sub} \rightarrow \text{CP} = f(2.1)$$

$$\text{Sub} \rightarrow \text{CP} = f(2.2)$$

$$\text{Sub} \rightarrow \text{CP} = f(2.3)$$

$$\text{Sub} \rightarrow \text{CC} = f(2.1)$$

$$\text{Sub} \rightarrow \text{CC} = f(2.2)$$

$$\text{Sub} \rightarrow \text{CC} = f(2.3)$$

$$\text{Sup} \rightarrow \text{PP} = f(2.1)$$

$$\text{Sup} \rightarrow \text{PP} = f(2.2)$$

$$\text{Sup} \rightarrow \text{PP} = f(2.3)$$

$$\text{Sup} \rightarrow \text{PC} = f(2.1)$$

$$\text{Sup} \rightarrow \text{PC} = f(2.2)$$

$$\text{Sup} \rightarrow \text{PC} = f(2.3)$$

$$\text{Sup} \rightarrow \text{CP} = f(2.1)$$

$$\text{Sup} \rightarrow \text{CP} = f(2.2)$$

$$\text{Sup} \rightarrow \text{CP} = f(2.3)$$

$$\text{Sup} \rightarrow \text{CC} = f(2.1)$$

$$\text{Sup} \rightarrow \text{CC} = f(2.2)$$

$$\text{Sup} \rightarrow \text{CC} = f(2.3)$$

2.13. $Q \rightarrow R^* = [\text{Adj}, \text{Subj}, \text{Transj}] \rightarrow [\text{Ad}, \text{Adj}, \text{Ex}]$,

$\text{Adj} \rightarrow \text{Ad} = f(2.1)$

$\text{Adj} \rightarrow \text{Ad} = f(2.2)$

$\text{Adj} \rightarrow \text{Ad} = f(2.3)$

$\text{Adj} \rightarrow \text{Adj} = f(2.1)$

$\text{Adj} \rightarrow \text{Adj} = f(2.2)$

$\text{Adj} \rightarrow \text{Adj} = f(2.3)$

$\text{Adj} \rightarrow \text{Ex} = f(2.1)$

$\text{Adj} \rightarrow \text{Ex} = f(2.2)$

$\text{Adj} \rightarrow \text{Ex} = f(2.3)$

$\text{Subj} \rightarrow \text{Ad} = f(2.1)$

$\text{Subj} \rightarrow \text{Ad} = f(2.2)$

$\text{Subj} \rightarrow \text{Ad} = f(2.3)$

$\text{Subj} \rightarrow \text{Adj} = f(2.1)$

$\text{Subj} \rightarrow \text{Adj} = f(2.2)$

$\text{Subj} \rightarrow \text{Adj} = f(2.3)$

$\text{Subj} \rightarrow \text{Ex} = f(2.1)$

$\text{Subj} \rightarrow \text{Ex} = f(2.2)$

$\text{Subj} \rightarrow \text{Ex} = f(2.3)$

$\text{Transj} \rightarrow \text{Ad} = f(2.1)$

$\text{Transj} \rightarrow \text{Ad} = f(2.2)$

$\text{Transj} \rightarrow \text{Ad} = f(2.3)$

$\text{Transj} \rightarrow \text{Adj} = f(2.1)$

$\text{Transj} \rightarrow \text{Adj} = f(2.2)$

$\text{Transj} \rightarrow \text{Adj} = f(2.3)$

$\text{Transj} \rightarrow \text{Ex} = f(2.1)$

$\text{Transj} \rightarrow \text{Ex} = f(2.2)$

$\text{Transj} \rightarrow \text{Ex} = f(2.3)$

2.14. $Q \rightarrow P = [\text{Adj}, \text{Subj}, \text{Transj}] \rightarrow (\text{PP}, \text{PC}, \text{CP}, \text{CC})$

$\text{Adj} \rightarrow \text{PP} = f(2.1)$

$\text{Adj} \rightarrow \text{PP} = f(2.2)$

$\text{Adj} \rightarrow \text{PP} = f(2.3)$

$\text{Adj} \rightarrow \text{PC} = f(2.1)$

$\text{Adj} \rightarrow \text{PC} = f(2.2)$

$\text{Adj} \rightarrow \text{PC} = f(2.3)$

$\text{Adj} \rightarrow \text{CP} = f(2.1)$

$\text{Adj} \rightarrow \text{CP} = f(2.2)$

$\text{Adj} \rightarrow \text{CP} = f(2.3)$

$\text{Adj} \rightarrow \text{CC} = f(2.1)$

$\text{Adj} \rightarrow \text{CC} = f(2.2)$

$\text{Adj} \rightarrow \text{CC} = f(2.3)$

$\text{Subj} \rightarrow \text{PP} = f(2.1)$

$\text{Subj} \rightarrow \text{PP} = f(2.2)$

$\text{Subj} \rightarrow \text{PP} = f(2.3)$

$\text{Subj} \rightarrow \text{PC} = f(2.1)$

$\text{Subj} \rightarrow \text{PC} = f(2.2)$

$\text{Subj} \rightarrow \text{PC} = f(2.3)$

$\text{Subj} \rightarrow \text{CP} = f(2.1)$

$\text{Subj} \rightarrow \text{CP} = f(2.2)$

$\text{Subj} \rightarrow \text{CP} = f(2.3)$

$\text{Subj} \rightarrow \text{CC} = f(2.1)$

$\text{Subj} \rightarrow \text{CC} = f(2.2)$

$\text{Subj} \rightarrow \text{CC} = f(2.3)$

$\text{Transj} \rightarrow \text{PP} = f(2.1)$

$\text{Transj} \rightarrow \text{PP} = f(2.2)$

$\text{Transj} \rightarrow \text{PP} = f(2.3)$

$\text{Transj} \rightarrow \text{PC} = f(2.1)$

$\text{Transj} \rightarrow \text{PC} = f(2.2)$

$\text{Transj} \rightarrow \text{PC} = f(2.3)$

$\text{Transj} \rightarrow \text{CP} = f(2.1)$

$\text{Transj} \rightarrow \text{CP} = f(2.2)$

$\text{Transj} \rightarrow \text{CP} = f(2.3)$

$\text{Transj} \rightarrow \text{CC} = f(2.1)$

$\text{Transj} \rightarrow \text{CC} = f(2.2)$

$\text{Transj} \rightarrow \text{CC} = f(2.3)$

2.15. $R^* \rightarrow P = [\text{Ad}, \text{Adj}, \text{Ex}] \rightarrow (\text{PP}, \text{PC}, \text{CP}, \text{CC})$

$\text{Ad} \rightarrow \text{PP} = f(2.1)$

$\text{Ad} \rightarrow \text{PP} = f(2.2)$

$\text{Ad} \rightarrow \text{PP} = f(2.3)$

$\text{Ad} \rightarrow \text{PC} = f(2.1)$

$\text{Ad} \rightarrow \text{PC} = f(2.2)$

$\text{Ad} \rightarrow \text{PC} = f(2.3)$

$\text{Ad} \rightarrow \text{CP} = f(2.1)$

$\text{Ad} \rightarrow \text{CP} = f(2.2)$

$\text{Ad} \rightarrow \text{CP} = f(2.3)$

$\text{Ad} \rightarrow \text{CC} = f(2.1)$

$\text{Ad} \rightarrow \text{CC} = f(2.2)$

$\text{Ad} \rightarrow \text{CC} = f(2.3)$

$\text{Adj} \rightarrow \text{PP} = f(2.1)$

$\text{Adj} \rightarrow \text{PP} = f(2.2)$

$\text{Adj} \rightarrow \text{PP} = f(2.3)$

$\text{Adj} \rightarrow \text{PC} = f(2.1)$

$\text{Adj} \rightarrow \text{PC} = f(2.2)$

$\text{Adj} \rightarrow \text{PC} = f(2.3)$

$\text{Adj} \rightarrow \text{CP} = f(2.1)$

$\text{Adj} \rightarrow \text{CP} = f(2.2)$

$\text{Adj} \rightarrow \text{CP} = f(2.3)$

$\text{Adj} \rightarrow \text{CC} = \text{f}(2.1)$

$\text{Adj} \rightarrow \text{CC} = \text{f}(2.2)$

$\text{Adj} \rightarrow \text{CC} = \text{f}(2.3)$

$\text{Ex} \rightarrow \text{PP} = \text{f}(2.1)$

$\text{Ex} \rightarrow \text{PP} = \text{f}(2.2)$

$\text{Ex} \rightarrow \text{PP} = \text{f}(2.3)$

$\text{Ex} \rightarrow \text{PC} = \text{f}(2.1)$

$\text{Ex} \rightarrow \text{PC} = \text{f}(2.2)$

$\text{Ex} \rightarrow \text{PC} = \text{f}(2.3)$

$\text{Ex} \rightarrow \text{CP} = \text{f}(2.1)$

$\text{Ex} \rightarrow \text{CP} = \text{f}(2.2)$

$\text{Ex} \rightarrow \text{CP} = \text{f}(2.3)$

$\text{Ex} \rightarrow \text{CC} = \text{f}(2.1)$

$\text{Ex} \rightarrow \text{CC} = \text{f}(2.2)$

$\text{Ex} \rightarrow \text{CC} = \text{f}(2.3)$

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