

Die erkenntnistheoretischen Transitionen

1. Im folgenden werden im Anschluß an das in Toth (2013a, b) vorgestellte semiotisch-kybernetische Modell sämtliche 270 möglichen Übergänge von den 9 semiotisch differenzierbaren Beobachtungs- und Wahrnehmungsrelationen zu den nach dem peirceschen Zeichenmodell 10 möglichen Erkenntnisrelationen in der Sprache der semiotischen Kategorientheorie gegeben. Was hiermit also formalisiert vorliegt, sind alle semiotisch repräsentierbaren Fälle, wie beobachtete und wahrgenommene Objekte durch thetische Einführung zu Zeichen erklärt werden können. (Vgl. zur Metaobjektivierung Bense 1967, S. 9 u. zur Terminologie der Subrelationen Bense 1979, S. 61).

2. Wahrnehmungsrelationen

2.1. $[\{\text{id}_1, \alpha, \beta\alpha\} \rightarrow \{\alpha, \text{id}_2, \beta\}]$

(1.1. $\rightarrow$ 2.1) (1.2. $\rightarrow$ 2.1) (1.3 $\rightarrow$ 2.1)

(1.1. $\rightarrow$ 2.2) (1.2. $\rightarrow$ 2.2) (1.3 $\rightarrow$ 2.2)

(1.1. $\rightarrow$ 2.3) (1.2. $\rightarrow$ 2.3) (1.3 $\rightarrow$ 2.3)

2.2. $[\{\alpha^\circ, \text{id}_2, \beta\} \rightarrow \{\alpha, \text{id}_2, \beta\}]$

(2.1. $\rightarrow$ 2.1) (2.2. $\rightarrow$ 2.1) (2.3 $\rightarrow$ 2.1)

(2.1. $\rightarrow$ 2.2) (2.2. $\rightarrow$ 2.2) (2.3 $\rightarrow$ 2.2)

(2.1. $\rightarrow$ 2.3) (2.2. $\rightarrow$ 2.3) (2.3 $\rightarrow$ 2.3)

2.3. $[\{\alpha^\circ\beta^\circ, \beta^\circ, \text{id}_3\} \rightarrow \{\alpha, \text{id}_2, \beta\}]$

(3.1. $\rightarrow$ 2.1) (3.2. $\rightarrow$ 2.1) (3.3 $\rightarrow$ 2.1)

(3.1. $\rightarrow$ 2.2) (3.2. $\rightarrow$ 2.2) (3.3 $\rightarrow$ 2.2)

(3.1. $\rightarrow$ 2.3) (3.2. $\rightarrow$ 2.3) (3.3 $\rightarrow$ 2.3)

3. Erkenntnisrelationen

$$3.1. (3.1, 2.1, 1.1) = [[id_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$3.2. (3.1, 2.1, 1.2) = [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$3.3. (3.1, 2.1, 1.3) = [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$3.4. (3.1, 2.2, 1.2) = [[\alpha \rightarrow id_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$3.5. (3.1, 2.2, 1.3) = [[\beta\alpha \rightarrow id_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$3.6. (3.1, 2.3, 1.3) = [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ \beta^\circ]$$

$$3.7. (3.2, 2.2, 1.2) = [[\alpha \rightarrow id_2] \rightarrow \beta^\circ]$$

$$3.8. (3.2, 2.2, 1.3) = [[\beta\alpha \rightarrow id_2] \rightarrow \beta^\circ]$$

$$3.9. (3.2, 2.3, 1.3) = [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$3.10. (3.3, 2.3, 1.3) = [[\beta\alpha \rightarrow \beta] \rightarrow id_3]$$

4. Abbildungen der Wahrnehmungs- auf die Erkenntnisrelationen

4.1. Mediale Transitionen

4.1.1. Qualitative Transitionen

$$[id_1 \rightarrow \alpha] \rightarrow [[id_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow id_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow id_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow id_2] \rightarrow \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow id_2] \rightarrow \beta^\circ]$$

$$[id_1 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.2. Quantitative Transitionen

$$[\alpha \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.3. Essentielle Transitionen

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.4. Abstraktive Transitionen

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.5. Relative Transitionen

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.6. Komprehensive Transitionen

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.7. Konnexive Transitionen

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_1 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.8. Limitative Transitionen

$$[\alpha \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.1.9. Komplettierende Transitionen

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta\alpha \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2. Objekale Transitionen

4.2.1. Qualitative Transitionen

$$[\alpha \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.2. Quantitative Transitionen

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.3. Essentielle Transitionen

$$[\beta \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.4. Abstraktive Transitionen

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.5. Relative Transitionen

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.6. Komprehensive Transitionen

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.7. Konnexive Transitionen

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.8. Limitative Transitionen

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_2 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.2.9. Komplettierende Transitionen

$$[\beta \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3. Subjektale Transitionen

4.3.1. Qualitative Transitionen

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.2. Quantitative Transitionen

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.3. Essentielle Transitionen

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_3 \rightarrow \alpha] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.4. Abstraktive Transitionen

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.5. Relative Transitionen

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.6. Komprehensive Transitionen

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\text{id}_3 \rightarrow \text{id}_2] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.7. Konnexive Transitionen

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \alpha^\circ\beta^\circ]$$

$$[\alpha^\circ\beta^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\alpha^\circ \beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.8. Limitative Transitionen

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \beta^\circ]$$

$$[\beta^\circ \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \text{id}_3]$$

4.3.9. Komplettierende Transitionen

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\text{id}_1 \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \alpha^\circ] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \text{id}_2] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\beta \alpha \rightarrow \beta] \rightarrow \alpha^\circ \beta^\circ]$$

$$[\text{id}_3 \rightarrow \beta] \rightarrow [[\alpha \rightarrow \text{id}_2] \rightarrow \beta^\circ]$$

$[id_3 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow id_2] \rightarrow \beta^\circ]$

$[id_3 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow \beta^\circ]$

$[id_3 \rightarrow \beta] \rightarrow [[\beta\alpha \rightarrow \beta] \rightarrow id_3]$

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