

Koinzidenzen und Schnitte in trajektischen semiotischen Relationen

1. Wir haben Koinzidenzen und Schnitte bei trajektischen Relationen bereits in Toth (2025a) angetroffen. Bei trajektischen Morphismen und Heteromorphismen gibt es nur zwei Möglichkeiten des Verhaltens der Funktionsverläufe: Koinzidenz (K) und Schnitt (S). Sie können wie folgt definiert werden:

K: ZKl: $\text{COD}(\text{mor}) \equiv \text{COD}(\text{het})$

RTh: $\text{COD}(\text{het}) \equiv \text{COD}(\text{mor})$ ($\equiv$: Matching)

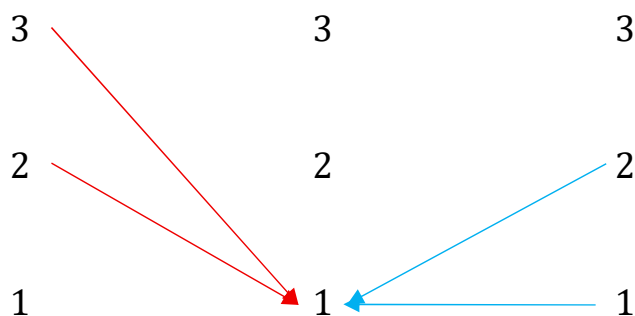
S: ZKl: $(a \rightarrow b) \cap (b \rightarrow c) \neq \emptyset$

RTh: $(a \leftarrow b) \cap (b \leftarrow c) \neq \emptyset$

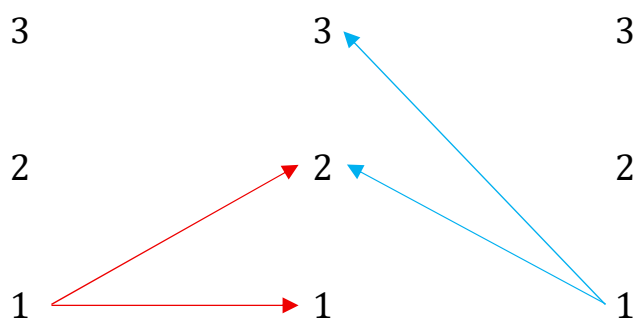
2. Im folgenden bilden wir alle 27 trajektischen semiotischen Relationen (vgl. Toth 2025b) auf (K, S)-Relationen ab. Die Abbildungen von Zeichenklassen und Realitätsthematiken auf (K, S)-Relationen ist nicht-bijektiv. Zeichenklassen und Realitätsthematiken haben meist verschiedene (K, S)-Relationen, d.h. diese sind nicht-dual). Neben K und S erscheint die leere Koinzidenz ($\emptyset$); es gibt hingegen keine leeren Schnitte.

1. Semiotische Relation

ZKl = (3.1, 2.1, 1.1) = (K, K | K, K)

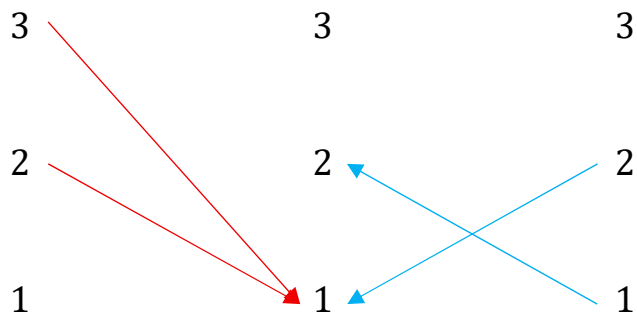


RTh = (1.1, 1.2, 1.3) = (K, $\emptyset$ | K, $\emptyset$)

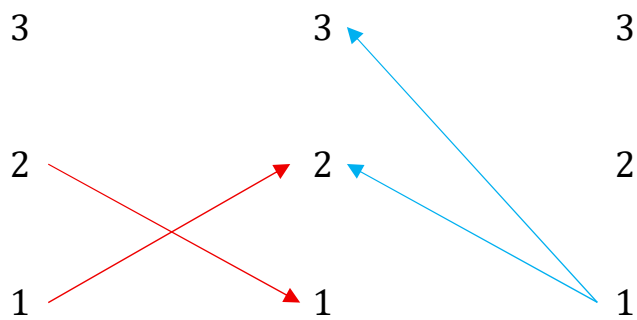


2. Semiotische Relation

$$\text{ZKl} = (3.1, 2.1, 1.2) = (\text{K}, \text{K} \mid \text{K}, \emptyset, \text{S})$$

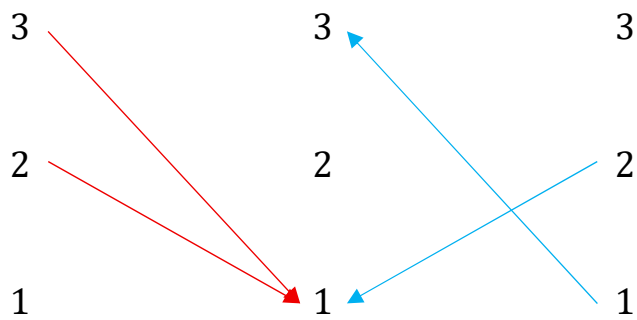


$$\text{RTh} = (2.1, 1.2, 1.3) = (\text{S}, \text{K}, \text{K} \mid \text{K}, \emptyset)$$

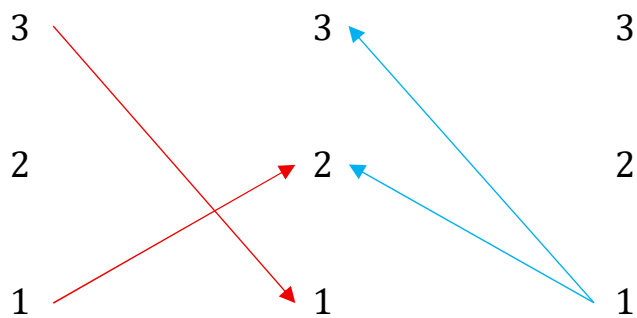


3. Semiotische Relation

$$\text{ZKl} = (3.1, 2.1, 1.3) = (\text{K}, \text{K} \mid \text{K}, \emptyset, \text{S})$$

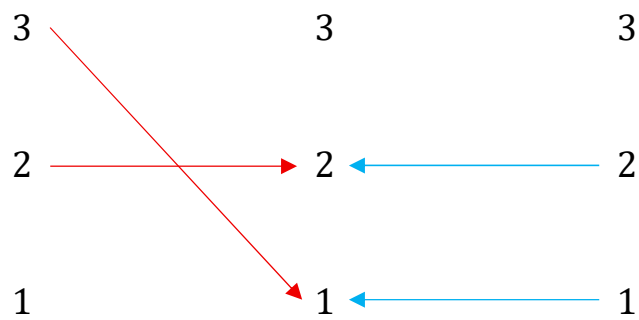


$$\text{RTh} = (3.1, 1.2, 1.3) = (\text{S}, \text{K}, \text{K} \mid \text{K}, \emptyset)$$

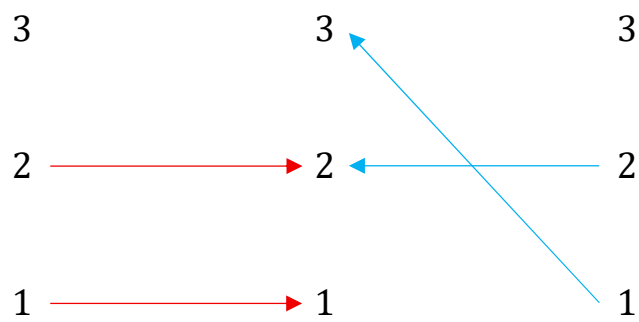


4. Semiotische Relation

$$\text{ZKl} = (3.1, 2.2, 1.1) = (\text{S}, \text{K}, \text{K} \mid \text{K}, \text{K})$$

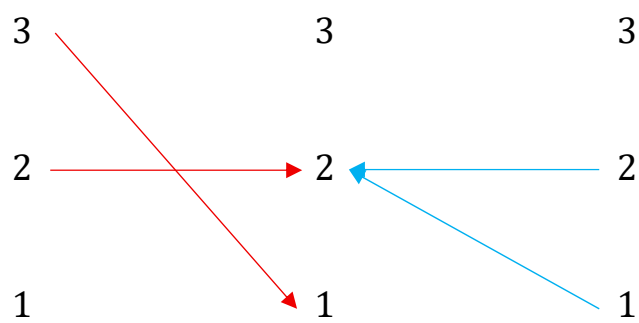


$$\text{RTh} = (1.1, 2.2, 1.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$

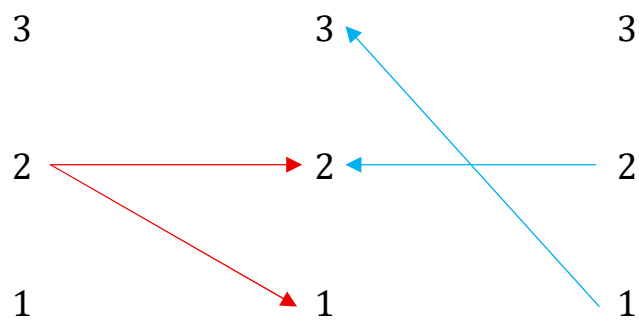


5. Semiotische Relation

$$\text{ZKl} = (3.1, 2.2, 1.2) = (\text{S}, \text{K}, \emptyset \mid \text{K}, \text{K})$$

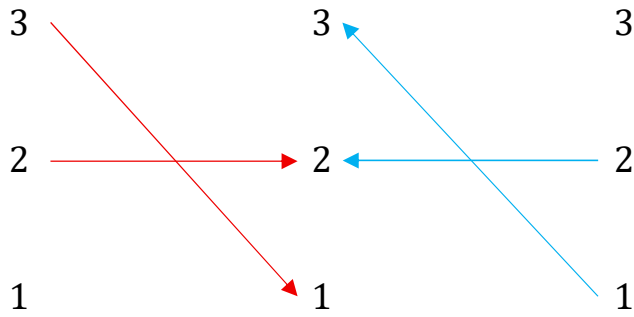


$$\text{RTh} = (2.1, 2.2, 1.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$

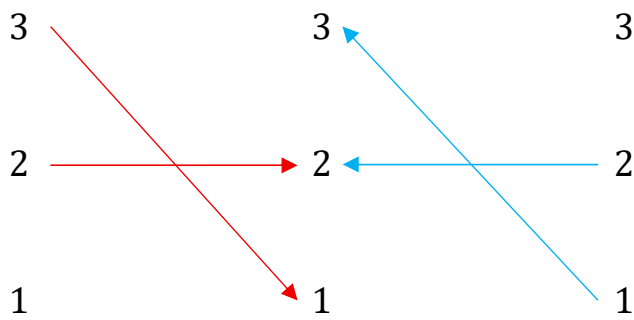


6. Semiotische Relation

$$\text{ZKl} = (3.1, 2.2, 1.3) = (\text{S}, \text{K}, \emptyset \mid \text{S}, \text{K}, \emptyset)$$

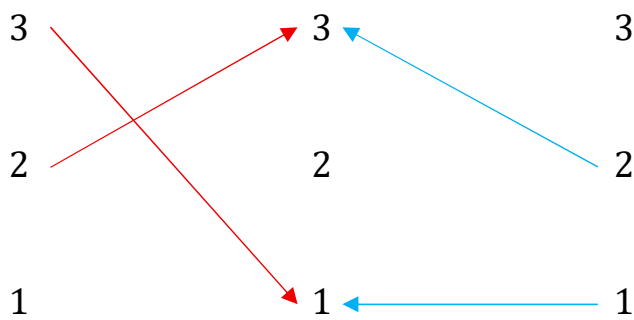


$$\text{RTh} = (3.1, 2.2, 1.3) = (\text{S}, \text{K}, \emptyset \mid \text{S}, \text{K}, \emptyset)$$

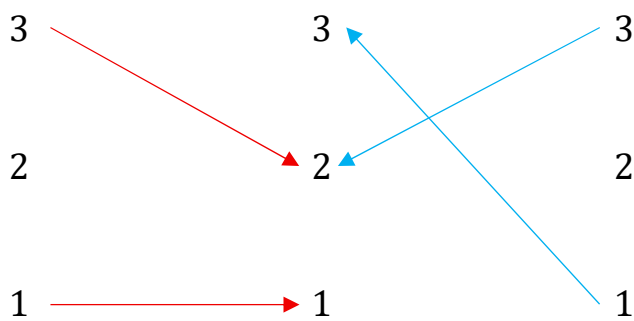


7. Semiotische Relation

$$\text{ZKl} = (3.1, 2.3, 1.1) = (\text{S}, \text{K}, \text{K} \mid \text{K}, \text{K})$$

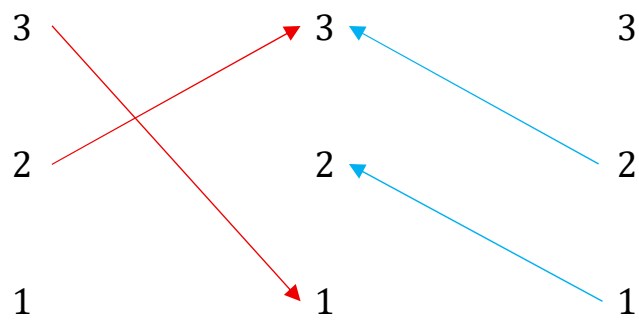


$$\text{RTh} = (1.1, 3.2, 1.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$

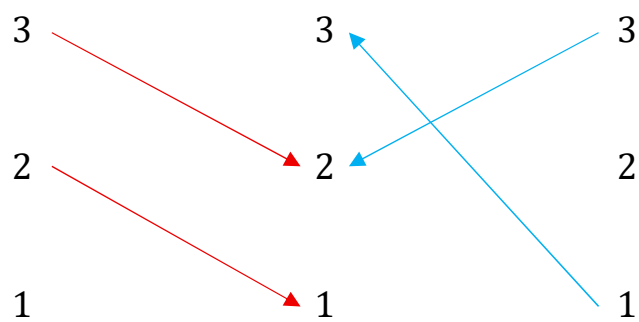


8. Semiotische Relation

$$\text{Zkl} = (3.1, 2.3, 1.2) = (\text{S}, \text{K}, \emptyset \mid \text{K}, \emptyset)$$

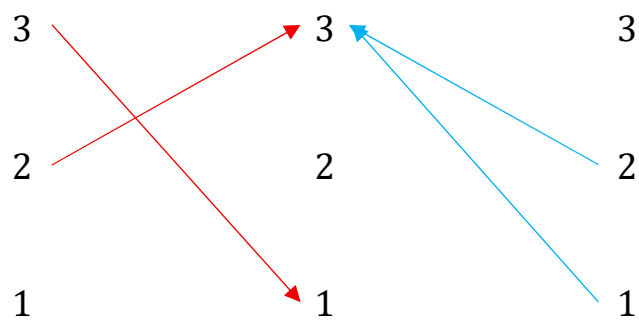


$$\text{RTh} = (2.1, 3.2, 1.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$

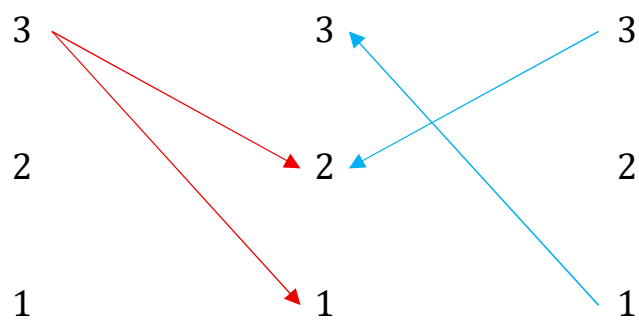


9. Semiotische Relation

$$\text{Zkl} = (3.1, 2.3, 1.3) = (\text{S}, \text{K}, \emptyset \mid \text{K}, \text{K})$$

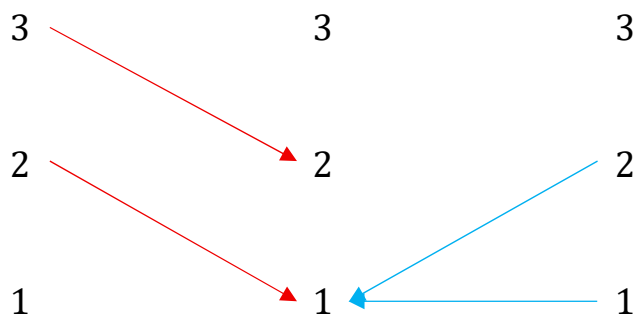


$$\text{RTh} = (3.1, 3.2, 1.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$

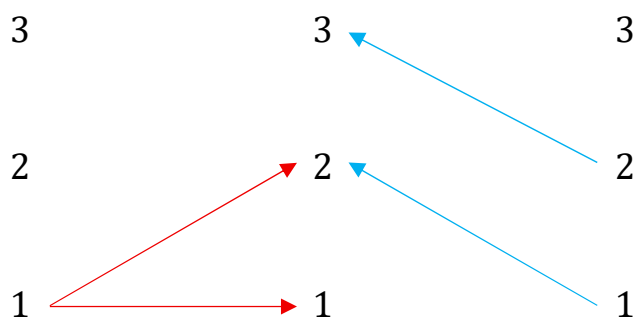


10. Semiotische Relation

$$\text{ZKl} = (3.2, 2.1, 1.1) = (K, \emptyset \mid K, K)$$

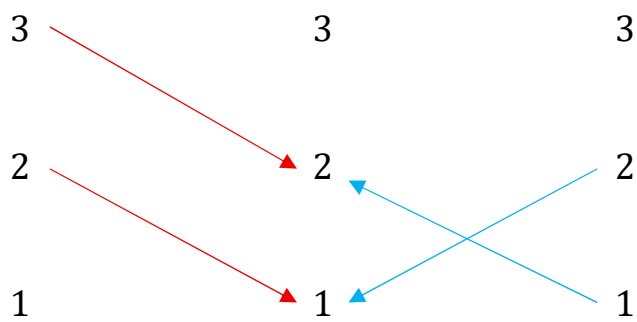


$$\text{RTh} = (1.1, 1.2, 2.3) = (K, \emptyset \mid K, \emptyset)$$

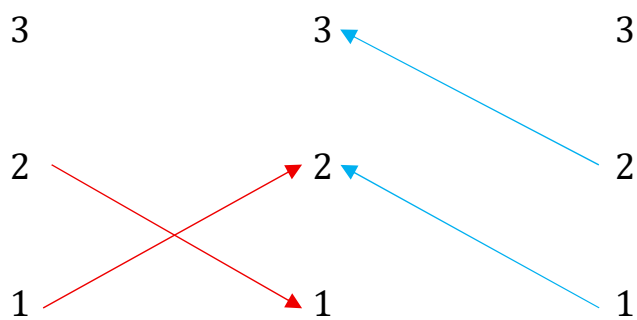


11. Semiotische Relation

$$\text{ZKl} = (3.2, 2.1, 1.2) = (K, K \mid K, K, S)$$

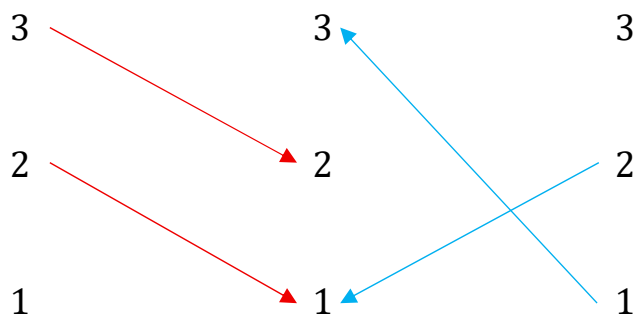


$$\text{RTh} = (2.1, 1.2, 2.3) = (S, K, \emptyset \mid K, \emptyset)$$

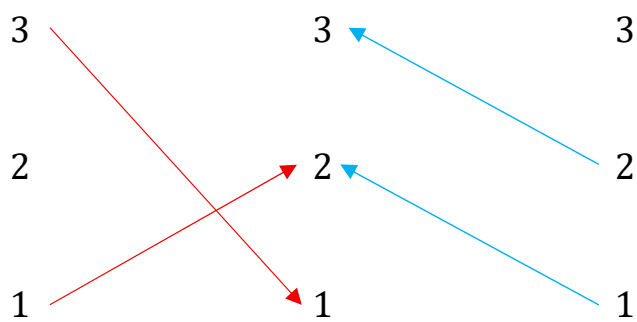


12. Semiotische Relation

$$\text{ZKl} = (3.2, 2.1, 1.3) = (K, \emptyset \mid K, \emptyset, S)$$

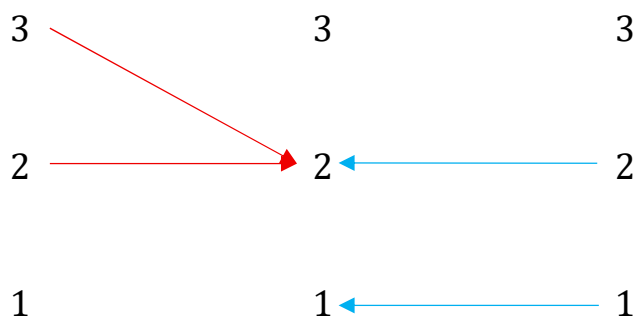


$$\text{RTh} = (3.1, 1.2, 2.3) = (S, K, \emptyset \mid K, \emptyset)$$

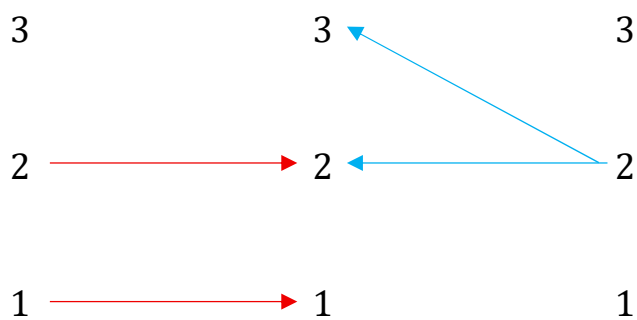


13. Semiotische Relation

$$\text{ZKl} = (3.2, 2.2, 1.1) = (K, K \mid K, \emptyset)$$

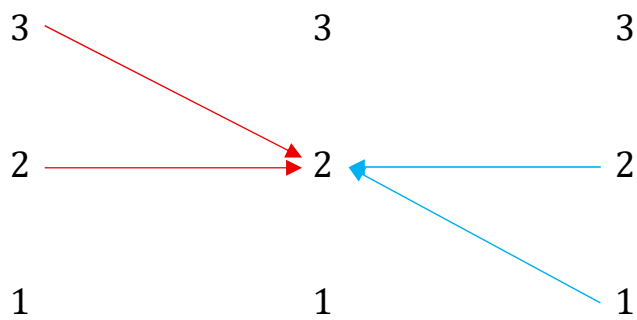


$$\text{RTh} = (1.1, 2.2, 2.3) = (K, \emptyset \mid K, \emptyset)$$

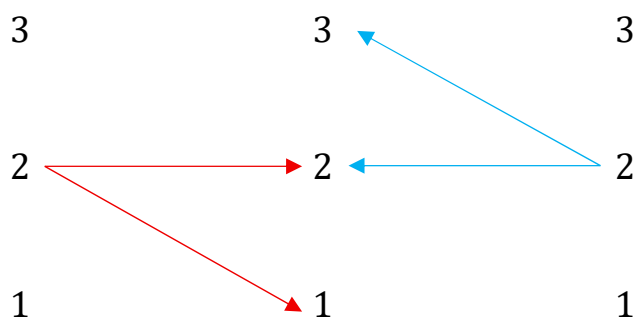


14. Semiotische Relation

$$\text{Zkl} = (3.2, 2.2, 1.2) = (\text{K}, \text{K} \mid \text{K}, \text{K})$$

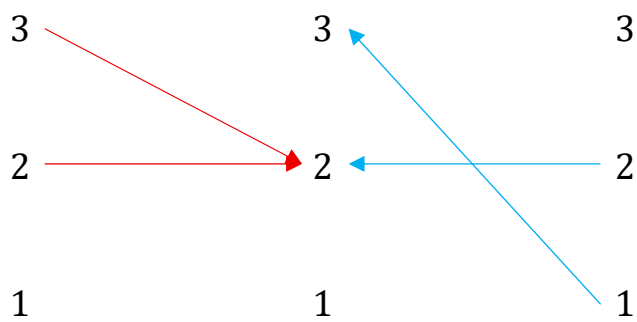


$$\text{RTh} = (2.1, 2.2, 2.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset)$$

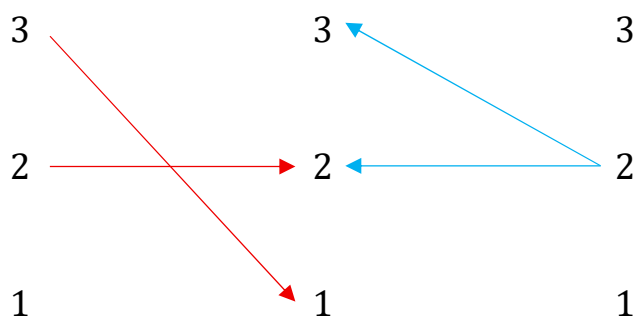


15. Semiotische Relation

$$\text{Zkl} = (3.2, 2.2, 1.3) = (\text{K}, \text{K} \mid \text{K}, \emptyset, \text{S})$$

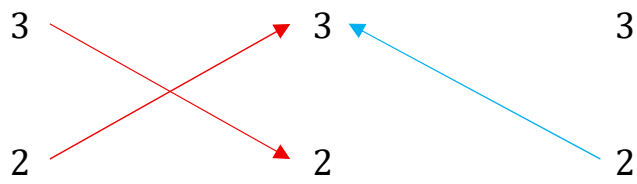


$$\text{RTh} = (3.1, 2.2, 2.3) = (\text{S}, \text{K}, \emptyset \mid \text{K}, \emptyset)$$

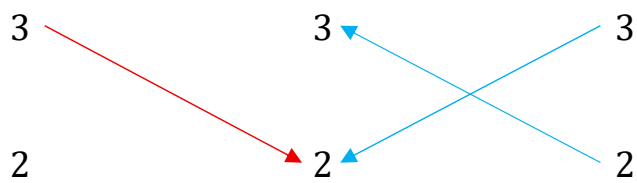


16. Semiotische Relation

$$\text{Zkl} = (3.2, 2.3, 1.1) = (\text{S}, \text{K}, \emptyset \mid \text{K}, \emptyset)$$



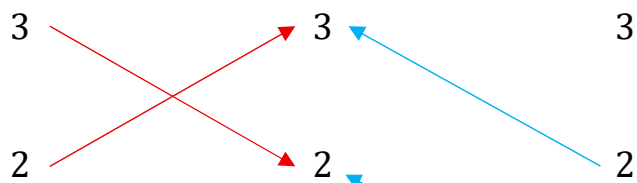
$$\text{RTh} = (1.1, 3.2, 2.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$



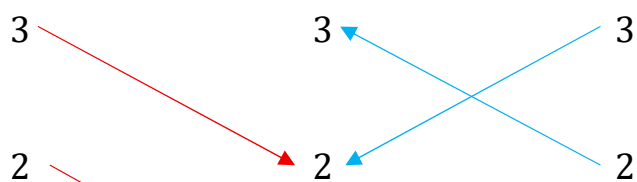
$$\text{Zkl} = (3.2, 2.3, 1.2) = (\text{K}, \text{K} \mid \text{K}, \text{K})$$

17. Semiotische Relation

$$\text{Zkl} = (3.2, 2.3, 1.2) = (\text{K}, \text{K} \mid \text{K}, \text{K})$$



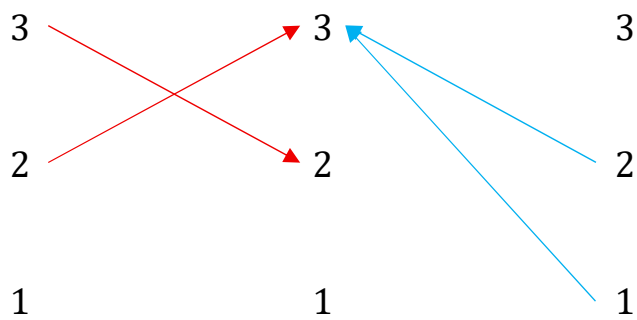
$$\text{RTh} = (2.1, 3.2, 2.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$



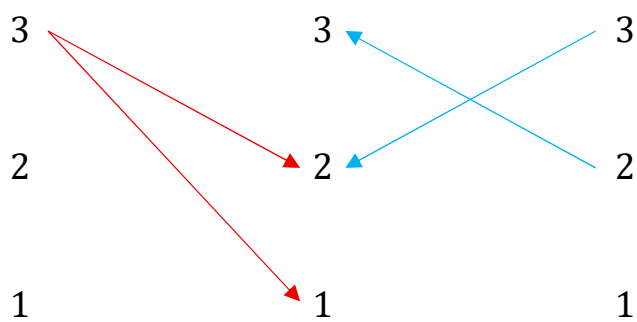
$$\text{Zkl} = (3.2, 2.3, 1.2) = (\text{K}, \text{K} \mid \text{K}, \text{K})$$

18. Semiotische Relation

$$\text{ZKl} = (3.2, 2.3, 1.3) = (\text{S}, \text{K}, \emptyset \mid \text{K}, \text{K})$$

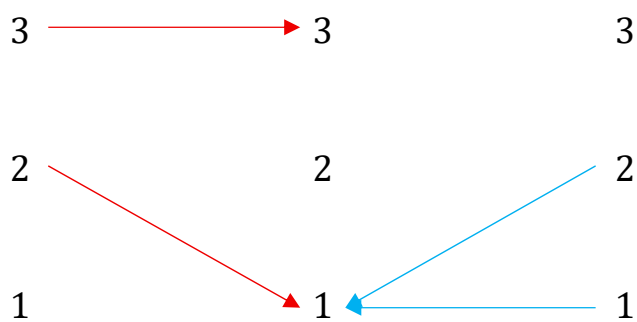


$$\text{RTh} = (3.1, 3.2, 2.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset, \text{S})$$

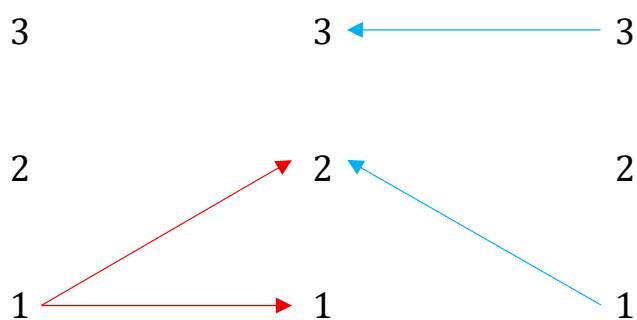


19. Semiotische Relation

$$\text{ZKl} = (3.3, 2.1, 1.1) = (\text{K}, \emptyset \mid \text{K}, \text{K})$$



$$\text{RTh} = (1.1, 1.2, 3.3) = (\text{K}, \emptyset \mid \text{K}, \emptyset)$$



20. Semiotische Relation

$$\text{Zkl} = (3.3, 2.1, 1.2) = (K, \emptyset \mid K, \emptyset, S)$$

3 $\xrightarrow{\text{red}}$ 3 3

2 2 $\xleftarrow{\text{blue}}$ 2
 1 1 $\xleftarrow{\text{blue}}$ 1

$$\text{RTh} = (2.1, 1.2, 3.3) = (S, K, \emptyset \mid K, \emptyset)$$

3 3 $\xleftarrow{\text{blue}}$ 3

2 2 $\xleftarrow{\text{blue}}$ 2
 1 1 $\xleftarrow{\text{blue}}$ 1

21. Semiotische Relation

$$\text{Zkl} = (3.3, 2.1, 1.3) = (K, K \mid K, K, S)$$

3 $\xrightarrow{\text{red}}$ 3 $\xleftarrow{\text{blue}}$ 3 3

2 2 $\xleftarrow{\text{blue}}$ 2
 1 1 $\xleftarrow{\text{blue}}$ 1

$$\text{RTh} = (3.1, 1.2, 3.3) = (S, K, \emptyset \mid K, \emptyset)$$

3 3 $\xleftarrow{\text{blue}}$ 3

2 2 $\xleftarrow{\text{blue}}$ 2
 1 1 $\xleftarrow{\text{blue}}$ 1

22. Semiotische Relation

$$\text{ZKl} = (3.3, 2.2, 1.1) = (K, \emptyset \mid K, \emptyset)$$

3 $\xrightarrow{\text{red}}$ 3 3

2 $\xrightarrow{\text{red}}$ 2 $\xleftarrow{\text{blue}}$ 2

1 1 $\xleftarrow{\text{blue}}$ 1

$$\text{RTh} = (1.1, 2.2, 3.3) = (K, \emptyset \mid K, \emptyset)$$

3 3 $\xleftarrow{\text{blue}}$ 3

2 $\xrightarrow{\text{red}}$ 2 $\xleftarrow{\text{blue}}$ 2

1 $\xrightarrow{\text{red}}$ 1 1

23. Semiotische Relation

$$\text{ZKl} = (3.3, 2.2, 1.2) = (K, \emptyset \mid K, K)$$

3 $\xrightarrow{\text{red}}$ 3 3

2 $\xrightarrow{\text{red}}$ 2 $\xleftarrow{\text{blue}}$ 2

1 1 $\xleftarrow{\text{blue}}$ 1

$$\text{RTh} = (2.1, 2.2, 3.3) = (K, \emptyset \mid K, \emptyset)$$

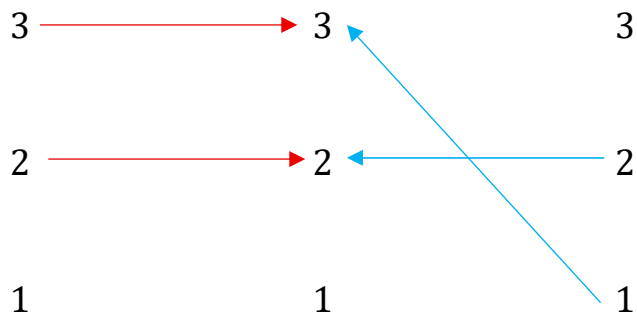
3 3 $\xleftarrow{\text{blue}}$ 3

2 $\xrightarrow{\text{red}}$ 2 $\xleftarrow{\text{blue}}$ 2

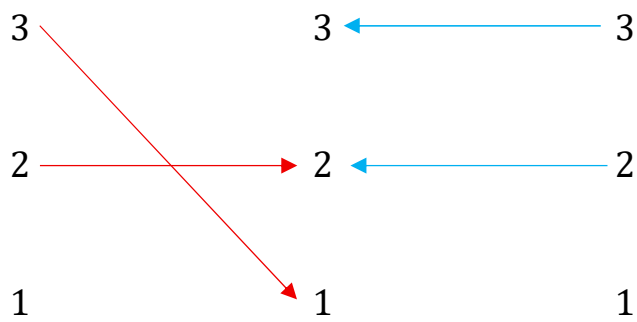
1 1 $\xrightarrow{\text{red}}$ 1

24. Semiotische Relation

$$\text{ZKl} = (3.3, 2.2, 1.3) = (K, K \mid K, K, S)$$

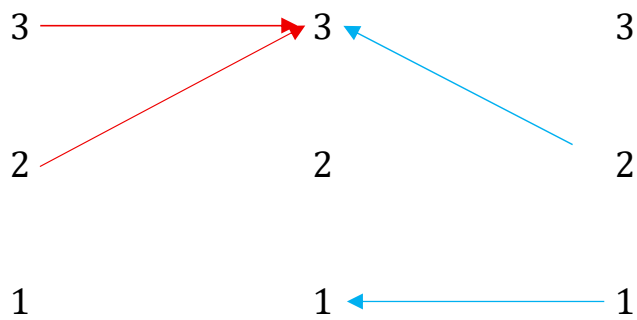


$$\text{RTh} = (3.1, 2.2, 3.3) = (S, K \mid K, \emptyset)$$

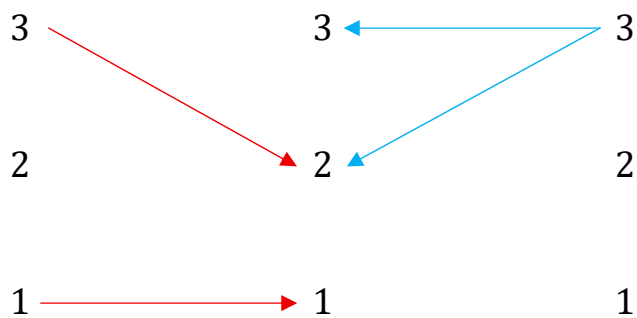


25. Semiotische Relation

$$\text{ZKl} = (3.3, 2.3, 1.1) = (K, K \mid K, \emptyset)$$

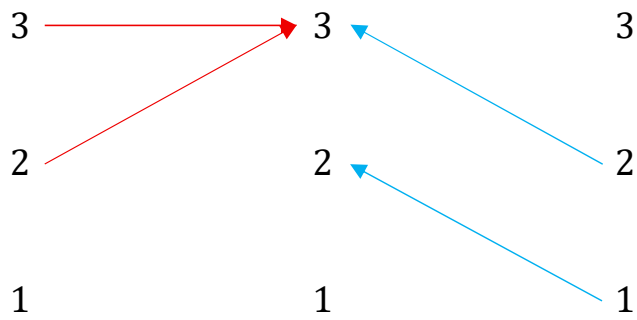


$$\text{RTh} = (1.1, 3.2, 3.3) = (K, \emptyset \mid K, \emptyset)$$

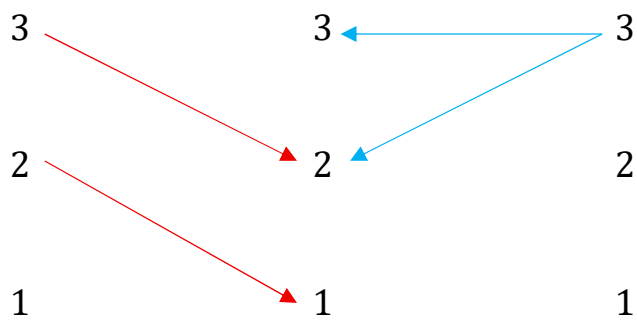


26. Semiotische Relation

$$\text{Zkl} = (3.3, 2.3, 1.2) = (K, K \mid K, \emptyset)$$

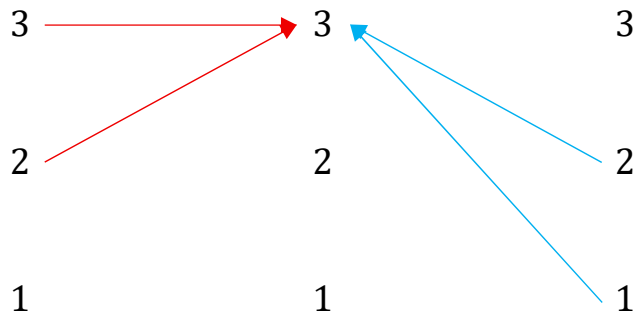


$$\text{RTh} = (2.1, 3.2, 3.3) = (K, \emptyset \mid K, \emptyset)$$

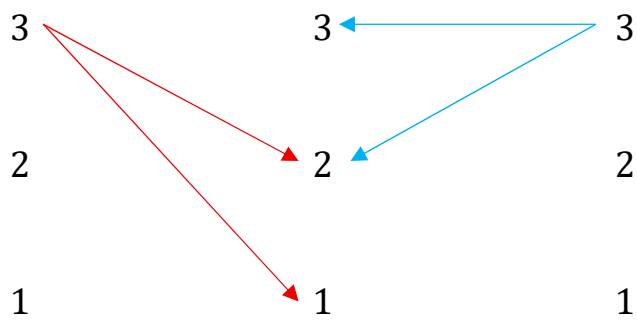


27. Semiotische Relation

$$\text{Zkl} = (3.3, 2.3, 1.3) = (K, K \mid K, K)$$



$$\text{RTh} = (3.1, 3.2, 3.3) = (K, \emptyset \mid K, \emptyset)$$



Literatur

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