

Beidseitig antizipative Trajektion 1. und 2. Stufe bei den Zeichenklassen

1. Im Anschluß an Toth (2025a) geht es auch im vorliegenden Beitrag darum, auf der Basis der in Toth (2025b) skizzierten Grundlagen einer Theorie trajektischer Abbildungen das Verhältnis von unverschränkten und verschränkten Relationen anhand der zehn benseschen Zeichenklassen darzustellen, darunter besonders jene Fälle, in denen die Verschränkungsabbildung weder im Graphen der Domäne noch in demjenigen der Codomäne ohne weiteres sichtbar ist.

2. Beidseitig antizipative Trajektion 1. und 2. Stufe

1. ZKl = (3.1, 2.1, 1.1)

3.1 2.1

1.1 2.1

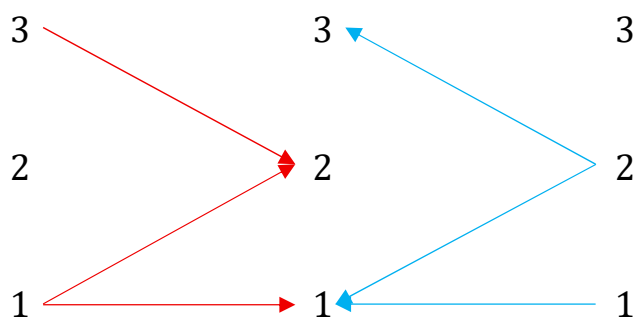
2.1 1.1

2.1 3.1

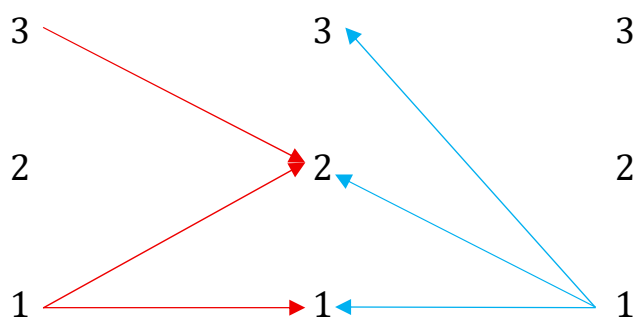
= (3.2, 1.1 | 2.1, 1.1)

= (1.2, 1.1 | 2.3, 1.1)

$\mathfrak{T}_{2\text{-ant}}^1(3.1, 2.1, 1.1) =$



$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 1.2, 1.1, 1.1) \cup (1.2, 1.2, 1.3, 1.1)$



2. ZKl = (3.1, 2.1, 1.2)

3.1 2.1

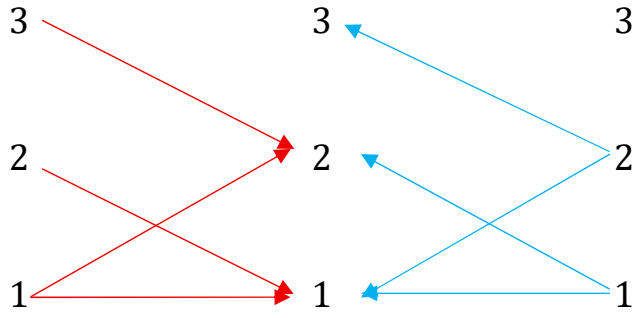
1.2 2.1

2.1 1.2

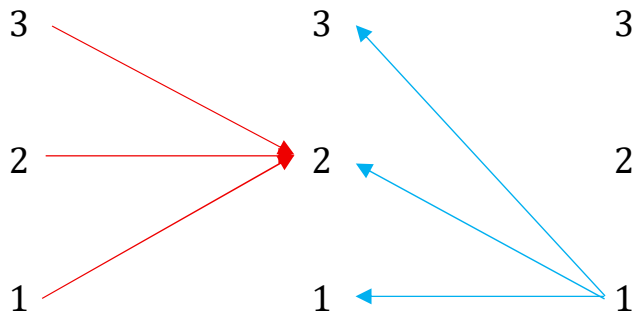
2.1 3.1

$$= (3.2, 1.1 \mid 2.1, 1.2) \quad = (1.2, 2.1 \mid 2.3, 1.1)$$

$$\mathfrak{T}_{2\text{-ant}^1}(3.1, 2.1, 1.2) =$$



$$\mathfrak{T}_{2\text{-ant}^2} =$$

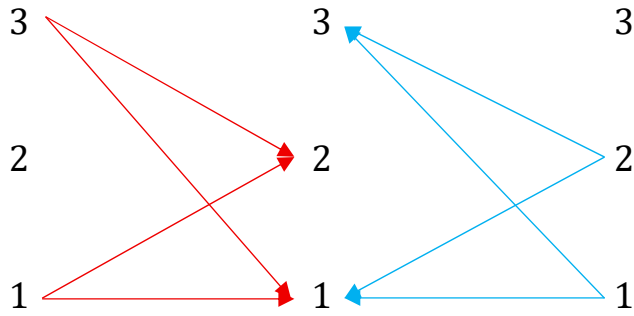


$$3. \text{Zkl} = (3.1, 2.1, 1.3)$$

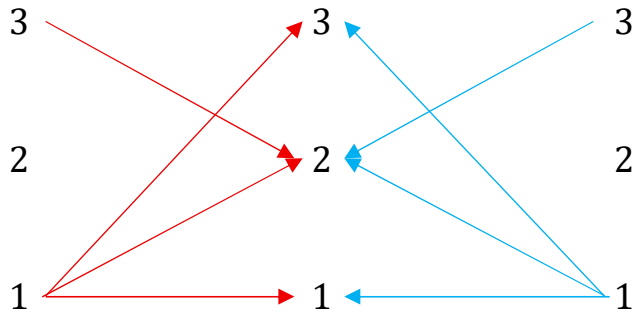
$$\begin{array}{cc} 3.1 & 2.1 \\ 2.1 & 1.3 \end{array} \quad \begin{array}{cc} 1.3 & 2.1 \\ 2.1 & 3.1 \end{array}$$

$$= (3.2, 1.1 \mid 2.1, 1.3) \quad = (1.2, 3.1 \mid 2.3, 1.1)$$

$$\mathfrak{T}_{2\text{-ant}^1}(3.1, 2.1, 1.3) =$$



$$\mathfrak{T}_{2\text{-ant}^2} = (3.2, 1.2, 1.1, 1.3) \cup (1.2, 3.2, 1.3, 1.1)$$



4. $ZKI = (3.1, 2.2, 1.2)$

3.1 2.2

1.2 2.2

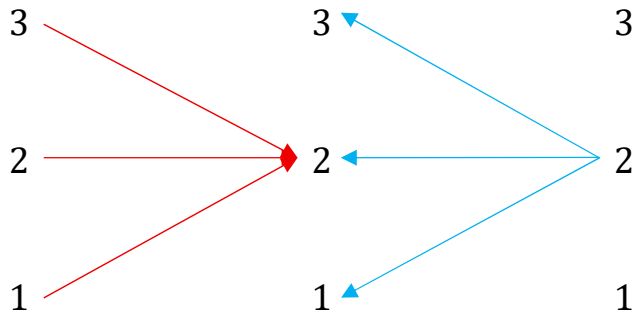
2.2 1.2

2.2 3.1

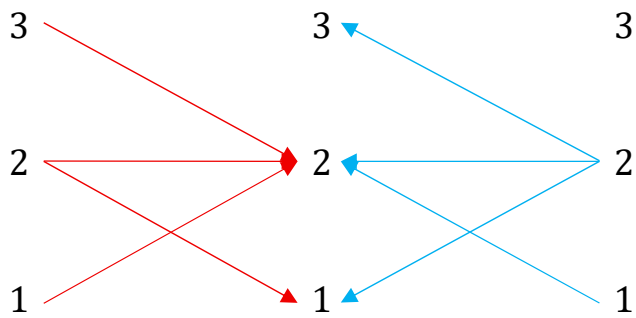
$= (3.2, 1.2 \mid 2.1, 2.2)$

$= (1.2, 2.2 \mid 2.3, 2.1)$

$\mathfrak{T}_{2\text{-ant}^1}(3.1, 2.2, 1.2) =$



$\mathfrak{T}_{2\text{-ant}^2} = (3.2, 1.2, 2.1, 2.2) \cup (1.2, 2.2, 2.3, 2.1)$



5. $ZKI = (3.1, 2.2, 1.3)$

3.1 2.2

1.3 2.2

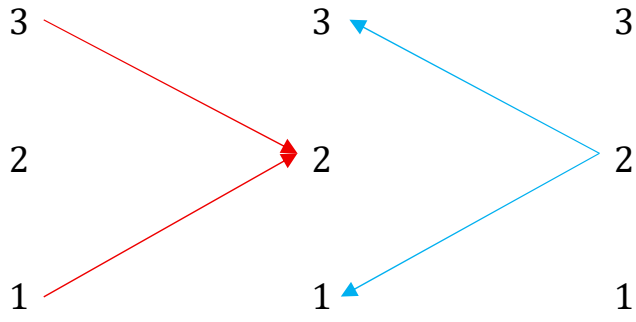
2.2 1.3

2.2 3.1

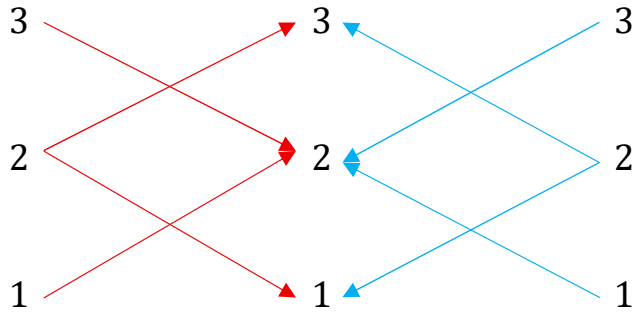
$= (3.2, 1.2 \mid 2.1, 2.3)$

$= (1.2, 3.2 \mid 2.3, 2.1)$

$\mathfrak{T}_{2\text{-ant}^1}(3.1, 2.2, 1.3) =$



$$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 1.2, 2.1, 2.3) \cup (1.2, 3.2, 2.3, 2.1)$$



$$6. \text{Zkl} = (3.1, 2.3, 1.3)$$

3.1 2.3

1.3 2.3

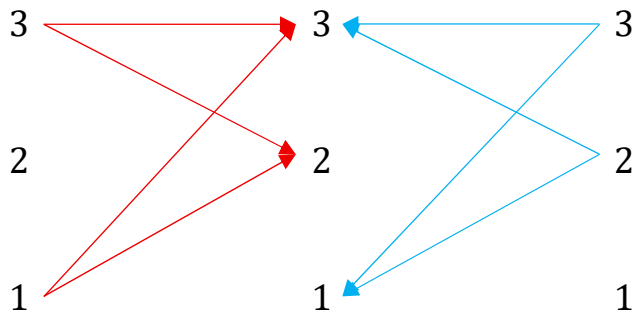
2.3 1.3

2.3 3.1

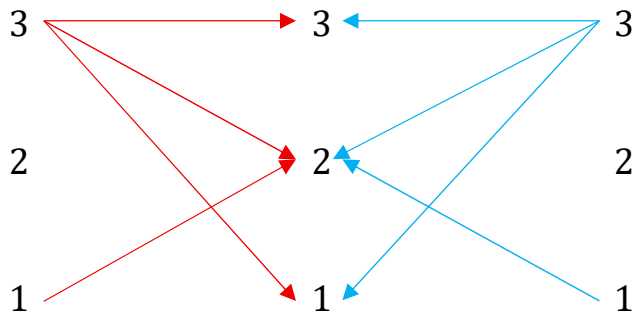
$$= (3.2, 1.3 \mid 2.1, 3.3)$$

$$= (1.2, 3.3 \mid 2.3, 3.1)$$

$$\mathfrak{T}_{2\text{-ant}}^1(3.1, 2.3, 1.3) =$$



$$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 1.2, 3.1, 3.3) \cup (1.2, 3.2, 3.3, 3.1)$$



$$7. \text{Zkl} = (3.2, 2.2, 1.2)$$

$$\begin{array}{cc} 3.2 & 2.2 \\ 2.2 & 1.2 \end{array}$$

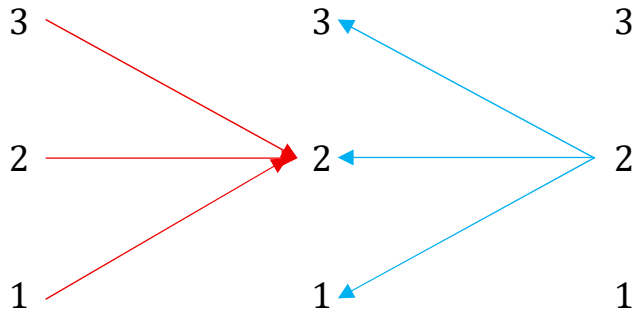
$$\begin{array}{cc} 1.2 & 2.2 \\ 2.2 & 3.2 \end{array}$$

$$= (3.2, 2.2 \mid 2.1, 2.2)$$

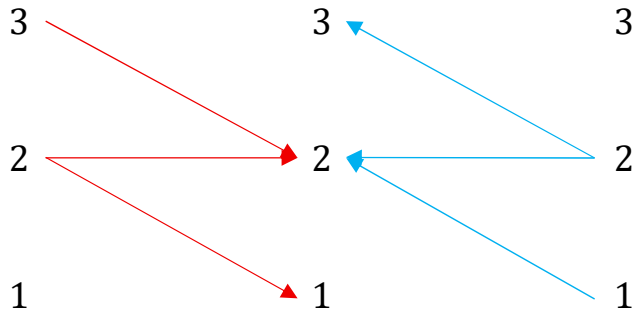
$$= (1.2, 2.2 \mid 2.3, 2.2)$$

$$= (3.2, 2.2 \mid 2.1, 2.2) \quad = (1.2, 2.2 \mid 2.3, 2.2)$$

$$\mathfrak{T}_{2\text{-ant}}^1(3.2, 2.2, 1.2) =$$



$$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 2.2, 2.1, 2.2) \cup (1.2, 2.2, 2.3, 2.2)$$



$$8. \text{Zkl} = (3.2, 2.2, 1.3)$$

$$\begin{array}{cc} 3.2 & 2.2 \\ 2.2 & 1.3 \end{array}$$

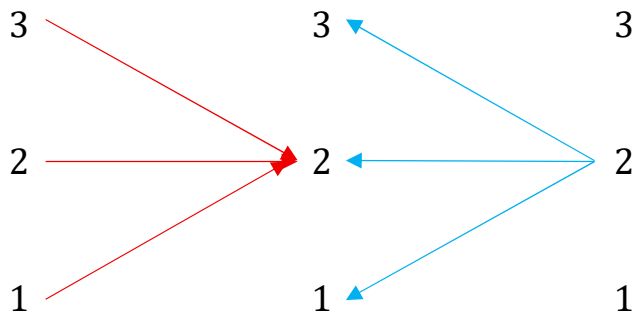
$$\begin{array}{cc} 1.3 & 2.2 \\ 2.2 & 3.2 \end{array}$$

$$= (3.2, 2.2 \mid 2.1, 2.3)$$

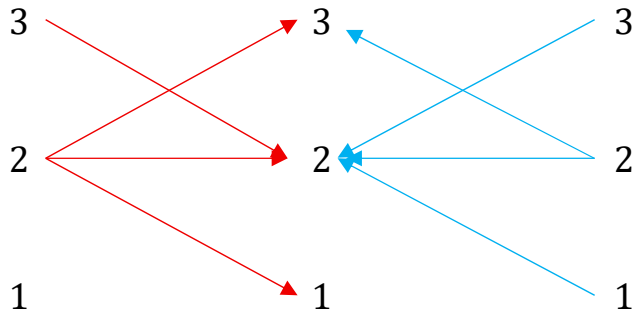
$$= (1.2, 3.2 \mid 2.3, 2.2)$$

$$= (3.2, 2.2 \mid 2.1, 2.3) \quad = (1.2, 3.2 \mid 2.3, 2.2)$$

$$\mathfrak{T}_{2\text{-ant}}^1(3.2, 2.2, 1.3) =$$



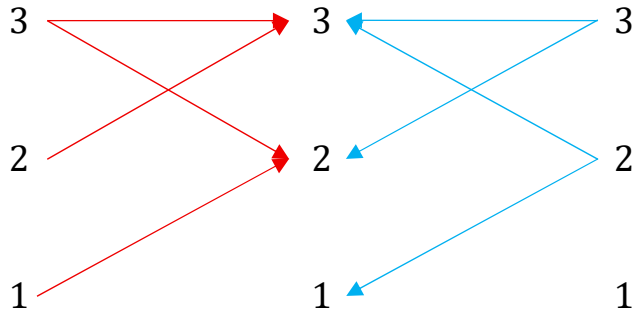
$$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 2.2, 2.1, 2.3) \cup (1.2, 3.2, 2.3, 2.2)$$



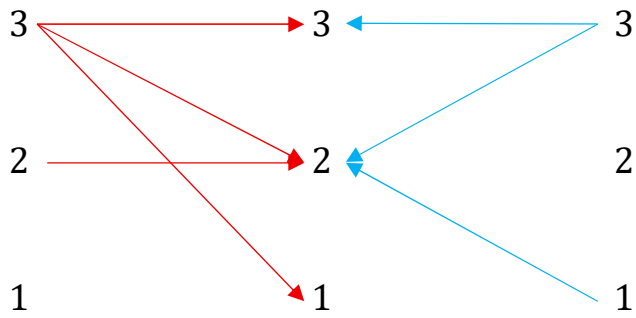
$$9. \text{ZKI} = (3.2, 2.3, 1.3)$$

$$\begin{array}{cc} 3.2 & 2.3 \\ 2.3 & 1.3 \\ = (3.2, 2.3 \mid 2.1, 3.3) \end{array} \quad \begin{array}{cc} 1.3 & 2.3 \\ 2.3 & 3.2 \\ = (1.2, 3.3 \mid 2.3, 3.2) \end{array}$$

$$\mathfrak{T}_{2\text{-ant}}^1(3.2, 2.3, 1.3) =$$



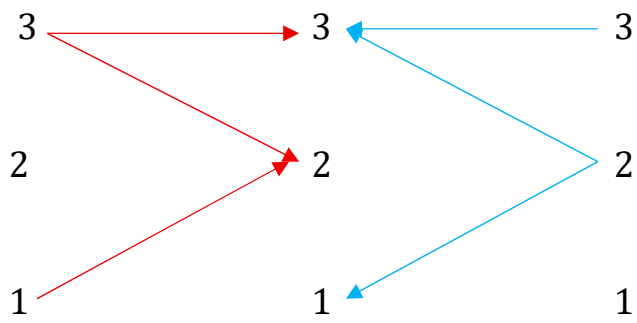
$$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 2.2, 3.1, 3.3) \cup (1.2, 3.2, 3.3, 3.2)$$



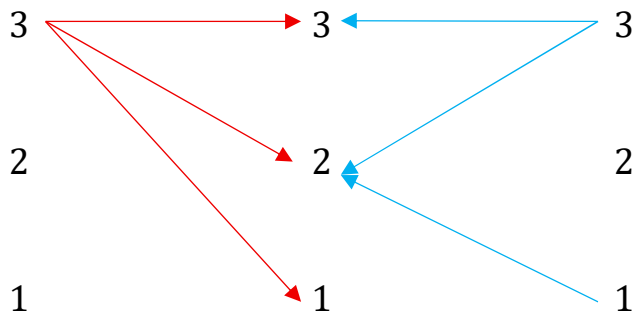
$$10. \text{ZKI} = (3.3, 2.3, 1.3)$$

$$\begin{array}{cc} 3.3 & 2.3 \\ 2.3 & 1.3 \\ = (3.2, 3.3 \mid 2.1, 3.3) \end{array} \quad \begin{array}{cc} 1.3 & 2.3 \\ 2.3 & 3.3 \\ = (1.2, 3.3 \mid 2.3, 3.3) \end{array}$$

$$\mathfrak{T}_{2\text{-ant}}^1(3.3, 2.3, 1.3) =$$



$$\mathfrak{T}_{2\text{-ant}}^2 = (3.2, 3.2, 3.1, 3.3) \cup (1.2, 3.2, 3.3, 3.3)$$



Literatur

Toth, Alfred, Monofunktorielle und rechtsantizipative Zeichenklassen. In: Electronic Journal for Mathematical Semiotics, 2025a

Toth, Alfred, Kleine Theorie trajektischer Abbildungen. In: Electronic Journal for Mathematical Semiotics, 2025b

6.9.2025