

Prof. Dr. Alfred Toth

Trajektionen semiotischer Teilungsklassen

1. Wir gehen aus von der allgemeinen Definition eines semiotischen Dualsystems

$$\text{DS: ZKl} = (3.x, 2.y, 1.z) \times \text{RTh} = (z.1, y.2, x.3)$$

und der in Toth (2026a, b) behandelten Teilungsoperation der Halbierung von Zeichenklassen und Realitätsthematiken

$$\text{hal: } (3.x \ 2.y \ 1.z) \rightarrow (3.x \ 2. \mid .y \ 1.z).$$

2. Im folgenden transformieren wir die in Toth (2026b) konstruierten dualen semiotischen Teilungssysteme in duale trajektische Teilungsrelationen.

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 1 & 1 & 1 & \times & 1 & 1 & 1 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 1.1 & 1.1 & \times & 1.1 & 1.1 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 1 & 1 & 2 & \times & 2 & 1 & 1 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 1.1 & 1.2 & \times & 2.1 & 1.1 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 1 & 1 & 3 & \times & 3 & 1 & 1 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 1.1 & 1.3 & \times & 3.1 & 1.1 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 2 & 1 & 1 & \times & 1 & 1 & 2 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.1 & 1.2 & & 2.1 & 1.3 \\ & 2.1 & 1.1 & \times & 1.1 & 1.2 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 2 & 1 & 2 & \times & 2 & 1 & 2 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 2.1 & 1.2 & \times & 2.1 & 1.2 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 2 & 1 & 3 & \times & 3 & 1 & 2 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 2.1 & 1.3 & \times & 3.1 & 1.2 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 3 & 1 & 1 & \times & 1 & 1 & 3 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 3.1 & 1.1 & \times & 1.1 & 1.3 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 3 & 1 & 2 & \times & 2 & 1 & 3 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 3.1 & 1.2 & \times & 2.1 & 1.3 \end{array}$$

$$\begin{array}{ccccc} 3 & 1 & 2 & & 2 & 1 & 3 \\ 3 & 1 & 3 & \times & 3 & 1 & 3 \\ \Rightarrow & 3.1 & 1.2 & & 2.1 & 1.3 \\ & 3.1 & 1.3 & \times & 3.1 & 1.3 \end{array}$$

$$\begin{array}{cccccc}
3 & 2 & 2 & & 2 & 2 & 3 \\
1 & 1 & 1 & \times & 1 & 1 & 1 \\
\Rightarrow & 3.2 & 2.2 & & 2.2 & 2.3 & \\
& 1.1 & 1.1 & \times & 1.1 & 1.1 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 2 & 2 & & 2 & 2 & 3 \\
1 & 1 & 2 & \times & 2 & 1 & 1 \\
\Rightarrow & 3.2 & 2.2 & & 2.2 & 2.3 & \\
& 1.1 & 1.2 & \times & 2.1 & 1.1 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 2 & 2 & & 2 & 2 & 3 \\
1 & 1 & 3 & \times & 3 & 1 & 1 \\
\Rightarrow & 3.2 & 2.2 & & 2.2 & 2.3 & \\
& 1.1 & 1.3 & \times & 3.1 & 1.1 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 2 & 2 & & 2 & 2 & 3 \\
2 & 1 & 1 & \times & 1 & 1 & 2 \\
\Rightarrow & 3.2 & 2.2 & & 2.2 & 2.3 & \\
& 2.1 & 1.1 & \times & 1.1 & 1.2 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 2 & 2 & & 2 & 2 & 3 \\
2 & 1 & 2 & \times & 2 & 1 & 2 \\
\Rightarrow & 3.2 & 2.2 & & 2.2 & 2.3 & \\
& 2.1 & 1.2 & \times & 2.1 & 1.2 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 2 & 2 & & 2 & 2 & 3 \\
2 & 1 & 3 & \times & 3 & 1 & 2
\end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ 2.1 & 1.3 & \times & 3.1 & 1.2 \end{array}$$

$$\begin{array}{ccccc} 3 & 2 & 2 & & 2 & 2 & 3 \\ 3 & 1 & 1 & \times & 1 & 1 & 3 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ 3.1 & 1.1 & \times & 1.1 & 1.3 \end{array}$$

$$\begin{array}{ccccc} 3 & 2 & 2 & & 2 & 2 & 3 \\ 3 & 1 & 2 & \times & 2 & 1 & 3 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ 3.1 & 1.2 & \times & 2.1 & 1.3 \end{array}$$

$$\begin{array}{ccccc} 3 & 2 & 2 & & 2 & 2 & 3 \\ 3 & 1 & 3 & \times & 3 & 1 & 3 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ \mathbf{3.1} & \mathbf{1.3} & \mathbf{\times} & \mathbf{3.1} & \mathbf{1.3} \end{array}$$

$$\begin{array}{ccccc} 3 & 3 & 2 & & 2 & 3 & 3 \\ 1 & 1 & 1 & \times & 1 & 1 & 1 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ \mathbf{1.1} & \mathbf{1.1} & \mathbf{\times} & \mathbf{1.1} & \mathbf{1.1} \end{array}$$

$$\begin{array}{ccccc} 3 & 3 & 2 & & 2 & 3 & 3 \\ 1 & 1 & 2 & \times & 2 & 1 & 1 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ \mathbf{1.1} & \mathbf{1.2} & \mathbf{\times} & \mathbf{2.1} & \mathbf{1.1} \end{array}$$

$$\begin{array}{cccccc}
3 & 3 & 2 & & 2 & 3 & 3 \\
1 & 1 & 3 & \times & 3 & 1 & 1 \\
\Rightarrow & 3.3 & 3.2 & & 2.3 & 3.3 & \\
& 1.1 & 1.3 & \times & 3.1 & 1.1 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 3 & 2 & & 2 & 3 & 3 \\
2 & 1 & 1 & \times & 1 & 1 & 2 \\
\Rightarrow & 3.3 & 3.2 & & 2.3 & 3.3 & \\
& 2.1 & 1.1 & \times & 1.1 & 1.2 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 3 & 2 & & 2 & 3 & 3 \\
2 & 1 & 2 & \times & 2 & 1 & 2 \\
\Rightarrow & 3.3 & 3.2 & & 2.3 & 3.3 & \\
& 2.1 & 1.2 & \times & 2.1 & 1.2 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 3 & 2 & & 2 & 3 & 3 \\
2 & 1 & 3 & \times & 3 & 1 & 2 \\
\Rightarrow & 3.3 & 3.2 & & 2.3 & 3.3 & \\
& 2.1 & 1.3 & \times & 3.1 & 1.2 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 3 & 2 & & 2 & 3 & 3 \\
3 & 1 & 1 & \times & 1 & 1 & 3 \\
\Rightarrow & 3.3 & 3.2 & & 2.3 & 3.3 & \\
& 3.1 & 1.1 & \times & 1.1 & 1.3 &
\end{array}$$

$$\begin{array}{cccccc}
3 & 3 & 2 & & 2 & 3 & 3 \\
3 & 1 & 2 & \times & 2 & 1 & 3
\end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ 3.1 & 1.2 & \times & 2.1 & 1.3 \end{array}$$

$$\begin{array}{ccccc} 3 & 3 & 2 & & 2 & 3 & 3 \\ 3 & 1 & 3 & \times & 3 & 1 & 3 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ \mathbf{3.1} & \mathbf{1.3} & \mathbf{\times} & \mathbf{3.1} & \mathbf{1.3} \end{array}$$

Es gibt also 9 eigenreale trajektische Teilungssysteme, bei denen die Dualinvarianz auf die untere Hälfte der trajektischen Relationen restringiert ist:

$$\Rightarrow \begin{array}{ccccc} 3.1 & 1.2 & & 2.1 & 1.3 \\ \mathbf{1.1} & \mathbf{1.1} & \mathbf{\times} & \mathbf{1.1} & \mathbf{1.1} \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.1 & 1.2 & & 2.1 & 1.3 \\ \mathbf{2.1} & \mathbf{1.2} & \mathbf{\times} & \mathbf{2.1} & \mathbf{1.2} \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.1 & 1.2 & & 2.1 & 1.3 \\ \mathbf{3.1} & \mathbf{1.3} & \mathbf{\times} & \mathbf{3.1} & \mathbf{1.3} \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ \mathbf{1.1} & \mathbf{1.1} & \mathbf{\times} & \mathbf{1.1} & \mathbf{1.1} \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ \mathbf{2.1} & \mathbf{1.2} & \mathbf{\times} & \mathbf{2.1} & \mathbf{1.2} \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.2 & 2.2 & & 2.2 & 2.3 \\ \mathbf{3.1} & \mathbf{1.3} & \mathbf{\times} & \mathbf{3.1} & \mathbf{1.3} \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ & 1.1 & 1.1 & \times & 1.1 & 1.1 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ & 2.1 & 1.2 & \times & 2.1 & 1.2 \end{array}$$

$$\Rightarrow \begin{array}{ccccc} 3.3 & 3.2 & & 2.3 & 3.3 \\ & 3.1 & 1.3 & \times & 3.1 & 1.3 \end{array}$$

Literatur

Toth, Alfred, Teilung von Zeichenrelationen. In: Electronic Journal for Mathematical Semiotics, 2026a

Toth, Alfred, Teilung semiotischer Relationen. In: Electronic Journal for Mathematical Semiotics, 2026b

24.4.2026