Prof. Dr. Alfred Toth

Randstrukturen der topologischen Subzeichen

1. Zu ersten Arbeiten zu einer topologischen Semiotik vgl. Toth (2025a, b). Im vorliegenden Beitrag werden aus topologischen semiotischen Matrizen Subzeichen extrahiert, topologisch und PC-arithmetisch definiert und auf dieser Basis die Randstrukturen des topologischen Gevierts definiert und daraus wiederum topologische Umgebungssysteme abgeleitet.

2. Matrizen

1. $\mathfrak{M}(a_Ab_A)$

	1_A	2_A	3_A
1_A	1_A1_A	1_A2_A	1_A3_A
2_A	2_A1_A	2_A2_A	2_A3_A
3_A	3_A1_A	3_A2_A	3_A3_A

2. $\mathfrak{M}(a_Ab_I)$

	.1	.2	.3
1_A	1_A1_I	1_A2_I	1_A3_I
2_A	2_A1_I	2_A2_I	2_A3_I
3_A	3_A1_I	3_A2_I	3_A3_I

3. $\mathfrak{M}(a_Ib_A)$

	1_A	2_A	3_A
1_I	1_I1_A	1_I2_A	1_I3_A
2_I	2_I1_A	2_I2_A	2_I3_A
3_I	3_I1_A	3_I2_A	3_I3_A

4. $\mathfrak{M}(a_I.b_I)$

	1_I	2_I	3_I
1_I	1_I1_I	1_I2_I	1_I3_I
2_I	2_I1_I	2_I2_I	2_I3_I
3_I	3_I1_I	3_I2_I	3_I3_I

3. Subzeichen

topologisch	PC-arithmetisch
$SZ^{\mathfrak{M}1} = (x_Ay_A)$	$((x/\square, y/\square), (\square\backslash x, \square\backslash y), (x/\square, \square\backslash y), (\square\backslash x, y/\square))$
$SZ^{\mathfrak{M}2} = (x_Ay_I)$	$((x/\square, \square/y), (\square\backslash x, y\backslash\square), (x/\square, y\backslash\square), (\square\backslash x, \square/y))$
$SZ^{\mathfrak{M}3} = (x_Iy_A)$	$((\square/x, y/\square), (\square\backslash x, y\backslash\square), (\square/x, y\backslash\square), (\square\backslash x, \square/y))$
$SZ^{\mathfrak{M}4} = (x_I.y_I)$	$((\square/x, \square/y,), (x\backslash\square, y\backslash\square), (\square/x, y\backslash\square), (x\backslash\square, \square/x))$

4. Randstrukturen

1. $_I|\ (x_Ay_A)\ |_I$

$_I|\ (x/\square, y/\square)\ |_{I,}\ _I|\ (\square\backslash x, \square\backslash y)\ |_{I,}\ _I|\ (x/\square, \square\backslash y)\ |_{I,}\ _I|\ (\square\backslash x, y/\square)\ |_I$

2. $_A|\ (x_Iy_I)\ |_A$

$_A|\ (\square/x, \square/y,)\ |_{A,}\ _A|\ (x\backslash\square, y\backslash\square)\ |_{A,}\ _A|\ (\square/x, y\backslash\square)\ |_{A,}\ _A|\ (x\backslash\square, \square/x)\ |_A$

3. $(x_A \mid y_I)$

$_I\mid (x/\square, \square/y) \mid_{A,\ I}\mid (\square\backslash x, y\backslash\square) \mid_{A,\ I}\mid (x/\square, y\backslash\square) \mid_{A,\ I}\mid (\square\backslash x, \square/y) \mid_A$

4. $(x_I \mid y_A)$

$_A\mid (\square/x, y/\square) \mid_{I,\ A}\mid (\square\backslash x, y\backslash\square) \mid_{I,\ A}\mid (\square/x, y\backslash\square) \mid_{I,\ A}\mid (\square\backslash x, \square/y) \mid_I$

5. Umgebungen

(PC-Relationen analog zu 3. Randstrukturen.)

1. $U(x_A y_A) = ((x_I y_I))$

2. $U(x_I y_I) = (((x_A y_A))$

3. a. $U^{lo}(x_A \mid y_I) = ((x_I y_I), (x_A y_I))$

   b. $U^{ro}(x_A \mid y_I) = ((x_A y_A), (x_I y_A))$

4. a. $U^{lo}(x_I \mid y_A) = ((x_A y_A), (x_I y_A))$

   b. $U^{ro}(x_I \mid y_A) = ((x_I y_I), (x_A y_I))$

Literatur

Toth, Alfred, Topologische Differenzierungen von Peirce-Zahlen. In: Electronic Journal for Mathematical Semiotics, 2025a

Toth, Alfred, Topologische semiotische Matrizen. In: Electronic Journal for Mathematical Semiotics, 2025b

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