Prof. Dr. Alfred Toth

Das Desertieren aus der Menschheit

> Dem Menschen, der die Erfahrung macht, daß es intensivere und höhere Formen des geistigen Lebens gibt, als sie durch die humane Gestalt repräsentiert werden, bleibt nichts übrig, als aus der Menschheit zu desertieren. Denn es ist die kategorische Pflicht des Bewußtseins, in sich die höchste Form des Erlebens zu realisieren, deren es überhaupt fähig ist.
>
> Gotthard Günther (1952, S. 232)

1. In Toth (2019a) hatten wir argumentiert, daß die Definition der drittheitlichen Trichotomie überflüssig und zudem inkonsistent ist, weil sie erstens die logische Subjektposition repräsentiert, aber von Peirce, Bense und Walther (1979) topologisch und logisch definiert wird. Zweitens weil der Zusammenhang von Zeichen ein Problem einer Zeichensyntax ist, aber keine Eigenschaft des Zeichens selbst (vgl. Klaus 1962). Bense selbst hatte das Zeichen wiederholt rein mathematisch definiert, so etwa kategorietheoretisch in (1979, S. 53 u. 67) oder zahlentheoretisch in (1981, S. 17 ff.). Drittens lassen sich die ersten zwei Trichotomien durch

(x.1): $Z = f(\Omega)$

(x.2): $Z = f(\omega, t)$

(x.3): $Z \neq f(\Omega)$

mit $x \in (1, 2)$ definieren, was jedoch für die dritte Trichotomie nicht möglich ist, da der Zusammenhang von Zeichen keine Funktion des Objektes, sondern eine solche einer Menge von Zeichen ist

$Z = f((Z))$.

Für den Trivialfall, daß die Menge aus dem Zeichen selbst besteht, gilt dann natürlich

$Z = f(Z)$.

Es genügt also völlig, von der semiotischen 2×3-Teilmatrix

	.1	.2	.3
1.	1.1	1.2	1.3
2.	2.1	2.2	2.3

auszugehen und jedes Subzeichen der Form

$S = (x.y)$

mit $x \in (1, 2)$ und $y \in (1, 2, 3)$

durch

$(x.1) = f(\Omega)$

$(x.2) = f(\omega, t)$

$(x.3) \neq f(\Omega)$

zu definieren. Ein offener Konnex kann dann definiert werden durch

(x.y),

ein abgeschlossener Konnex durch

(x.y] oder [x.y)

und ein vollständiger Konnex durch

[x.y].

2. Bekanntlich wurde die auf der 3×3-Matrix definierte triadisch-trichotomische Zeichenrelation Benses (vgl. Bense 1975, S. 37) als eine „verschachtelte Relation“ bzw. als eine „Relation über Relationen“ durch Bense (1979, S. 53 u. 67) wie folgt eingeführt

$Z^{3,3} = (M \to ((M \to O) \to (M \to O \to I)))$,

d.h. jede Teilrelation der Stufe $n = 1$ ist in den Teilrelationen der Stufen $n > 1$ eingebettet.

Gehen wir also aus von

$Z^{2,3} = ((w.x), (y.z))$

und setzen $(w.x) = A$ und $(y.z) = B$,

dann können wir auch die dyadisch-trichotomische Zeichenrelation als Relation über Relationen darstellen, und zwar auf 6-fache Weise

$Z^{2,3} = (A, B) = ((w.x), (y.z))$ keine Einbettung

$Z^{2,3} = ((A), B) = (((w.x)), (y.z))$ nur A links eingebettet

$Z^{2,3} = ((B), A) = (((y.z)), (w.x))$ nur B links eingebettet

$Z^{2,3} = (B, (A)) = ((y.z), ((w.x)))$ nur A rechts eingebettet

$Z^{2,3} = (A, (B)) = ((w.x), ((y.z)))$ nur B rechts eingebettet

$Z^{2,3} = ((A, B)) = (((w.x), (y.z)))$ A und B eingebettet

Damit haben wir außerdem eine Isomorphie zwischen der in Toth (2015) ebenfalls auf 6-fache Weise darstellbaren Logik L* und $Z^{2,3}$ gefunden. Will man nämlich die Reflexionsidentität der klassischen 2-wertigen aristotelischen Logik

L = (0, 1)

aufheben, ohne das Gesetz des Tertium non datur zu verletzen, so kann man dies durch Einführung eines Einbettungsoperators E mit

E: $x \to (x)$

tun. Dadurch erhält man folgende Abbildung

$L \to L^* = ((0, 1), ((0), 1), ((1), 0), (0, (1)), (1, (0)), ((0, 1)))$,

und damit

$Z^{2,3} \cong L^*$.

Die 36 möglichen dyadisch-trichotomischen semiotischen Relationen

(1.1, 2.1)	(1.1, 2.1]	[1.1, 2.1)	[1.1, 2.1]
(1.1, 2.2)	(1.1, 2.2]	[1.1, 2.2)	[1.1, 2.2]
(1.1, 2.3)	(1.1, 2.3]	[1.1, 2.3)	[1.1, 2.3]
(1.2, 2.1)	(1.2, 2.1]	[1.2, 2.1)	[1.2, 2.1]
(1.2, 2.2)	(1.2, 2.2]	[1.2, 2.2)	[1.2, 2.2]
(1.2, 2.3)	(1.2, 2.3]	[1.2, 2.3)	[1.2, 2.3]

(1.3, 2.1)	(1.3, 2.1]	[1.3, 2.1)	[1.3, 2.1]
(1.3, 2.2)	(1.3, 2.2]	[1.3, 2.2)	[1.3, 2.2]
(1.3, 2.3)	(1.3, 2.3]	[1.3, 2.3)	[1.3, 2.3]

müssen somit je 6-fach ausdifferenziert werden. Dadurch erhält man also 6 mal $36 = 216$ durch E differenzierbare topologische semiotische Relationen

(1.1, 2.1)	((1.1), 2.1)	(1.1, (2.1))	((2.1), 1.1)	(2.1, (1.1))	((2.1, 1.1))
(1.1, 2.1]	((1.1), 2.1]	(1.1, (2.1)]	((2.1), 1.1]	(2.1, (1.1)]	((1.1, 2.1)]
[1.1, 2.1)	[(1.1), 2.1)	[1.1, (2.1))	[(2.1), 1.1)	[2.1, (1.1))	[(1.1, 2.1))
[1.1, 2.1]	[(1.1), 2.1]	[1.1, (2.1)]	[(2.1), 1.1]	[2.1, (1.1)]	[(1.1, 2.1)]
(1.1, 2.2)	((1.1), 2.2)	(1.1, (2.2))	((2.2), 1.1)	(2.2, (1.1))	((1.1, 2.2))
(1.1, 2.2]	((1.1), 2.2]	(1.1, (2.2)]	((2.2), 1.1]	(2.2, (1.1)]	((1.1, 2.2)]
[1.1, 2.2)	[(1.1), 2.2)	[1.1, (2.2))	[(2.2), 1.1)	[2.2, (1.1))	[(1.1, 2.2))
[1.1, 2.2]	[(1.1), 2.2]	[1.1, (2.2)]	[(2.2), 1.1]	[2.2, (1.1)]	[(1.1, 2.2)]
(1.1, 2.3)	((1.1), 2.3)	(1.1, (2.3))	((2.3), 1.1)	(2.3, (1.1))	((1.1, 2.3))
(1.1, 2.3]	((1.1), 2.3]	(1.1, (2.3)]	((2.3), 1.1]	(2.3, (1.1)]	((1.1, 2.3)]
[1.1, 2.3)	[(1.1), 2.3)	[1.1, (2.3))	[(2.3), 1.1)	[2.3, (1.1))	[(1.1, 2.3))
[1.1, 2.3]	[(1.1), 2.3]	[1.1, (2.3)]	[(2.3), 1.1]	[2.3, (1.1)]	[(1.1, 2.3)]
(1.2, 2.1)	((1.2), 2.1)	(1.2, (2.1))	((2.1), 1.2)	(2.1, (1.2))	((1.2, 2.1))
(1.2, 2.1]	((1.2), 2.1]	(1.2, (2.1)]	((2.1), 1.2]	(2.1, (1.2)]	((1.2, 2.1)]
[1.2, 2.1)	[(1.2), 2.1)	[1.2, (2.1))	[(2.1), 1.2)	[2.1, (1.2))	[(1.2, 2.1))
[1.2, 2.1]	[(1.2), 2.1]	[1.2, (2.1)]	[(2.1), 1.2]	[2.1, (1.2)]	[(1.2, 2.1)]
(1.2, 2.2)	((1.2), 2.2)	(1.2, (2.2))	((2.2), 1.2)	(2.2, (1.2))	((1.2, 2.2))
(1.2, 2.2]	((1.2), 2.2]	(1.2, (2.2)]	((1.2), 2.2]	(1.2, (2.2)]	((1.2, 2.2)]
[1.2, 2.2)	[(1.2), 2.2)	[1.2, (2.2))	[(2.2), 1.2)	[2.2, (1.2))	[(1.2, 2.2))
[1.2, 2.2]	[(1.2), 2.2]	[1.2, (2.2)]	[(2.2), 1.2]	[2.2, (1.2)]	[(1.2, 2.2)]
(1.2, 2.3)	((1.2), 2.3)	(1.2, (2.3))	((2.3), 1.2)	(2.3, (1.2))	((1.2, 2.3))

(1.2, 2.3]	((1.2), 2.3]	(1.2, (2.3)]	((2.3), 1.2]	(2.3, (1.2)]	((1.2, 2.3)]
[1.2, 2.3)	[(1.2), 2.3)	[1.2, (2.3))	[(2.3), 1.2)	[2.3, (1.2))	[(1.2, 2.3))
[1.2, 2.3]	[(1.2), 2.3]	[1.2, (2.3)]	[(2.3), 1.2]	[2.3, (1.2)]	[(1.2, 2.3)]
(1.3, 2.1)	((1.3), 2.1)	(1.3, (2.1))	((2.1), 1.3)	(2.1, (1.3))	((1.3, 2.1))
(1.3, 2.1]	((1.3), 2.1]	(1.3, (2.1)]	((2.1), 1.3]	(2.1, (1.3)]	((1.3, 2.1)]
[1.3, 2.1)	[(1.3), 2.1)	[1.3, (2.1))	[(2.1), 1.3)	[2.1, (1.3))	[(1.3, 2.1))
[1.3, 2.1]	[(1.3), 2.1]	[1.3, (2.1)]	[(2.1), 1.3]	[2.1, (1.3)]	[(1.3, 2.1)]
(1.3, 2.2)	((1.3), 2.2)	(1.3, (2.2))	((2.2), 1.3)	(2.2, (1.3))	((1.3, 2.2))
(1.3, 2.2]	((1.3), 2.2]	(1.3, (2.2)]	((2.2), 1.3]	(2.2, (1.3)]	((1.3, 2.2)]
[1.3, 2.2)	[(1.3), 2.2)	[1.3, (2.2))	[(2.2), 1.3)	[2.2, (1.3))	[(1.3, 2.2))
[1.3, 2.2]	[(1.3), 2.2]	[1.3, (2.2)]	[(2.2), 1.3]	[2.2, (1.3)]	[(1.3, 2.2)]
(1.3, 2.3)	((1.3), 2.3)	(1.3, (2.3))	((2.3), 1.3)	(2.3, (1.3))	((1.3, 2.3))
(1.3, 2.3]	((1.3), 2.3]	(1.3, (2.3)]	((2.3), 1.3]	(2.3, (1.3)]	((1.3, 2.3)]
[1.3, 2.3)	[(1.3), 2.3)	[1.3, (2.3))	[(2.3), 1.3)	[2.3, (1.3))	[(1.3, 2.3))
[1.3, 2.3]	[(1.3), 2.3]	[1.3, (2.3)]	[(2.3), 1.3]	[2.3, (1.3)]	[(1.3, 2.3)].

Ferner enthält die bensesche 3 × 3-Matrix bekanntlich in den Zeilen die Triaden und in den Spalten die Trichotomien

	.1	.2	.3
1.	1.1	1.2	1.3
2.	2.1	2.2	2.3
3.	3.1	3.2	3.3.

Da es sich hier um eine quadratische Matrix handelt, ist natürlich n = m.

Dagegen ist die in Toth (2019b) eingeführte dyadisch-trichotomische Matrix eine 2 × 3-Matrix, bei der also n ≠ m gilt

	.1	.2	.3
1.	1.1	1.2	1.3
2.	2.1	2.2	2.3.

Während also die bensesche Zeichenrelation durch

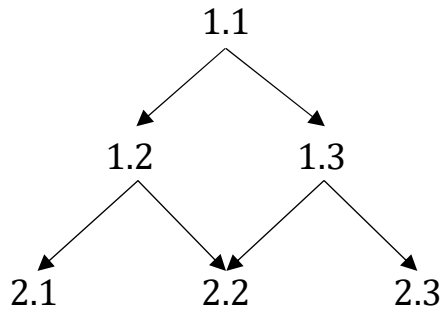
$Z^{3,3} = (3.x, 2.y, 1.z)$

mit $x, y, z \in (1, 2, 3)$ definiert ist, ist unsere Zeichenrelation durch

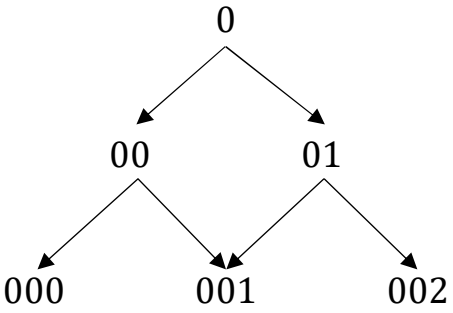
$Z^{2,3} = ((w.x), (y.z))$

mit $w, y \in (1, 2)$, aber $x, z \in (1, 2, 3)$ definiert.

3. Wie in Toth (2019c) gezeigt wurde, kann man die Subzeichen der 2×3-Matrix in einer Pseudo-Proto-Darstellung wie folgt anordnen



Dagegen ist die echte Proto- und die ihr gleiche Deutero-Darstellung für die Kontexturen $K = 1$ bis $K = 3$



Dadurch sind wir erstmals in der Geschichte der polykontexturalen Semiotik, die mit Kronthaler (1992) und Toth (2003) begonnen hatte, imstande, die 6 Subzeichen von $Z^{2,3}$ einer (bijektiven) Kenose zu unterziehen, denn aus der Äquivalenz der Pseudo-Proto-Deutero-Struktur von $Z^{2,3}$ und der Proto-Deutero-Struktur von $K = 1$ bis $K = 3$ folgt

(1.1) ↔ 0

(1.2) ↔ 00

(1.3) → 01

(2.1) ↔ 000

(2.2) ↔ 001

(2.3) ↔ 012.

Was die dyadische Form-Inhalts (FI)-Differenz von $Z^{2,3}$ – wie aller dyadischen Zeichenrelationen - betrifft, so können wir die obigen umkehrbar eindeutigen Zuordnungen weiter wie folgt kategorisieren

(1.1) ↔ 0 F ∪ I

(1.2) ↔ 00 ⎫
(1.3) → 01 ⎭ F

(2.1) ↔ 000 ⎫
(2.2) ↔ 001 ⎬ I
(2.3) ↔ 012. ⎭

Da wir in Toth (2019d) angedeutet hatten, daß man eine polykontexturale Semiotik konstruieren kann, stellen wir also fest, daß beim Übergang von der reinen Quantität der Bense-Semiotik zur Quali-Quantität der polykontexturalen Semiotik die Spalten für jede Zeile wachsen, d.h. statt -tomien haben wir in den entsprechenden Matrizen Kontexturen, d.h. Längen von Kenofolgen.

	Proto-Semiotik	Deutero-Semiotik	Trito-Semiotik
K = 1	[0]	[0]	[0]
K = 2	⎛ 00 ⎞ ⎝ 001 ⎠	⎛ 00 ⎞ ⎝ 01 ⎠	⎛ 00 ⎞ ⎝ 01 ⎠

	000	000	000
	001	001	001
	—	—	010
	—	—	011
K = 3	012	012	012

	0000	0000	0000
	0001	0001	0001
	—	—	0010
	—	0011	0011
	0012	0012	0012
	—	—	0100
	—	—	0101
	—	—	0102
	—	—	0110
	—	—	0111
	—	—	0112
	—	—	0120
	—	—	0121
	—	—	0122
K = 4	0123	0123	0123

Die Striche deuten hier die *qualitative gaps* zwischen den Proto-, Deutero- und Tritozahlen an (vgl. Toth 2019e, f). Da bei den Protozahlen nur die verschiedenen Zahlen, bei den Deuterozahlen die verschiedenen und die gleichen sowie bei den Tritozahlen zusätzlich die Orte relevant sind, findet also

eine graduelle Ausdifferenzierung zwischen den drei polykontexturalen Zahlen statt:

Peanozahlen — monokontextural

↓ (*qualitative jump*)

Protozahlen

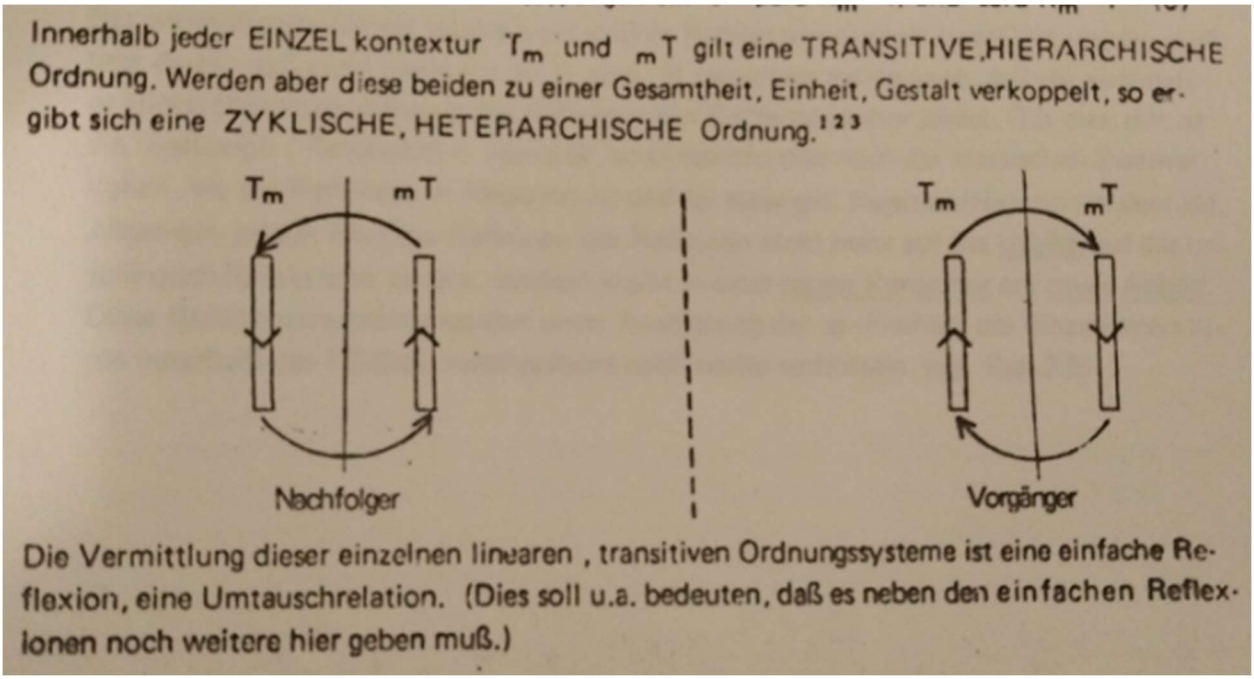
↓

Deuterozahlen — polykontextural

↓

Tritozahlen

4. Auf die Existenz von Paaren von reflektorischen Systemen, die wir im folgenden mit R und R* bezeichnen, hatte bereits Kronthaler (1986, S. 48) hingewiesen.



Deshalb stellen wir das vollständige System der 18 Teilsysteme der polykontexturalen Semiotik auf der Basis der dyadisch-trichotomischen topologischen Zeichenrelation $Z^{2,3} = ((w.x), (y.z))$ als Paare von R : R*-Systemen dar (vgl. Toth 2010g). Dieses System von polykontexturalen R- und R*-Systemen wird in dieser Arbeit als weitere Möglichkeit (vgl. Toth 2019h), semiotische zelluläre Automaten zu konstruieren, aufgezeigt.

5. Kenogrammatisches System der polykontexturalen Semiotik

5.1. (1.1, 2.1)-System

5.1.1. R-System

(○)(○○○)	((○))(○○○)	(○)((○○○))	((○○○))(○)	(○○○)((○))	((○))((○○○))
(○)(○○○]	((○))(○○○]	(○)((○○○)]	((○○○))(○]	(○○○)((○)]	((○))((○○○)]
(○)[○○○)	((○))[○○○)	(○)[(○○○))	((○○○))[○)	(○○○)[(○))	((○))[(○○○))
(○)[○○○]	((○))[○○○]	(○)[(○○○)]	((○○○))[○]	(○○○)[(○)]	((○))[(○○○)]
(○](○○○)	((○)](○○○)	(○]((○○○))	((○○○)](○)	(○○○]((○))	((○)]((○○○))
(○](○○○]	((○)](○○○]	(○]((○○○)]	((○○○)](○]	(○○○]((○)]	(○]((○○○)]
(○][○○○)	((○)][○○○)	(○][(○○○))	((○○○)][○)	(○○○][(○))	((○)][(○○○))
(○][○○○]	((○)][○○○]	(○][(○○○)]	((○○○)][○]	(○○○][(○)]	((○)][(○○○)]
[○)(○○○)	[(○))(○○○)	[○)((○○○))	[(○○○))(○)	[○○○)((○))	[(○))((○○○))
[○)(○○○]	[(○))(○○○]	[○)((○○○)]	[(○○○))(○]	[○○○)((○)]	[(○))((○○○)]
[○)[○○○)	[(○))[○○○)	[○)[(○○○))	[(○○○))[○)	[○○○)[(○))	[(○))[(○○○))
[○)[○○○]	[(○))[○○○]	[○)[(○○○)]	[(○○○))[○]	[○○○)[(○)]	[(○))[(○○○)]
[○](○○○)	[(○)](○○○)	[○]((○○○))	[(○○○)](○)	[○○○]((○))	[(○)]((○○○))
[○](○○○]	[(○)](○○○]	[○]((○○○)]	[(○○○)](○]	[○○○]((○)]	[(○)]((○○○)]
[○][○○○)	[(○)][○○○)	[○][(○○○))	[(○○○)][○)	[○○○][(○))	[(○)][(○○○))
[○][○○○]	[(○)][○○○]	[○][(○○○)]	[(○○○)][○]	[○○○][(○)]	[(○)][(○○○)].

5.1.2. R*-System

(ooo)(o)	((ooo))(o)	(ooo)((o))	((o))(ooo)	(o)((ooo))	((ooo))((o))
(ooo)(o]	((ooo))(o]	(ooo)((o)]	((o))(ooo]	(o)((ooo)]	((ooo))((o)]
(ooo)[o)	((ooo))[o)	(ooo)[(o))	((o))[ooo)	(o)[(ooo))	((ooo))[(o))
(ooo)[o]	((ooo))[o]	(ooo)[(o)]	((o))[ooo]	(o)[(ooo)]	((ooo))[(o)]

(ooo](o)	((ooo)](o)	(ooo]((o))	((o)](ooo)	(o]((ooo))	((ooo)]((o))
(ooo](o]	((ooo)](o]	(ooo]((o)]	((o)](ooo]	(o]((ooo)]	(ooo]((o)]
(ooo][o)	((ooo)][o)	(ooo][(o))	((o)][ooo)	(o][(ooo))	((ooo)][(o))
(ooo][o]	((ooo)][o]	(ooo][(o)]	((o)][ooo]	(o][(ooo)]	((ooo)][(o)]

[ooo)(o)	[(ooo))(o)	[ooo)((o))	[(o))(ooo)	[o)((ooo))	[(ooo))((o))
[ooo)(o]	[(ooo))(o]	[ooo)((o)]	[(o))(ooo]	[o)((ooo)]	[(ooo))((o)]
[ooo)[o)	[(ooo))[o)	[ooo)[(o))	[(o))[ooo)	[o)[(ooo))	[(ooo))[(o))
[ooo)[o]	[(ooo))[o]	[ooo)[(o)]	[(o))[ooo]	[o)[(ooo)]	[(ooo))[(o)]

[ooo](o)	[(ooo)](o)	[ooo]((o))	[(o)](ooo)	[o]((ooo))	[(ooo)]((o))
[ooo](o]	[(ooo)](o]	[ooo]((o)]	[(o)](ooo]	[o]((ooo)]	[(ooo)]((o)]
[ooo][o)	[(ooo)][o)	[ooo][(o))	[(o)][ooo)	[o][(ooo))	[(ooo)][(o))
[ooo][o]	[(ooo)][o]	[ooo][(o)]	[(o)][ooo]	[o][(ooo)]	[(ooo)][(o)]

5.2. (1.1, 2.2)-System

5.2.1. R-System

(○)(○○△)	((○))(○○△)	(○)((○○△))	((○○△))(○)	(○○△)((○))	((○))((○○△))
(○)(○○△]	((○))(○○△]	(○)((○○△)]	((○○△))(○]	(○○△)((○)]	((○))((○○△)]
(○)[○○△)	((○))[○○△)	(○)[(○○△))	((○○△))[○)	(○○△)[(○))	((○))[(○○△))
(○)[○○△]	((○))[○○△]	(○)[(○○△)]	((○○△))[○]	(○○△)[(○)]	((○))[(○○△)]
(○](○○△)	((○)](○○△)	(○]((○○△))	((○○△)](○)	(○○△]((○))	((○)]((○○△))
(○](○○△]	((○)](○○△]	(○]((○○△)]	((○○△)](○]	(○○△]((○)]	(○]((○○△)]
(○][○○△)	((○)][○○△)	(○][(○○△))	((○○△)][○)	(○○△][(○))	((○)][(○○△))
(○][○○△]	((○)][○○△]	(○][(○○△)]	((○○△)][○]	(○○△][(○)]	((○)][(○○△)]
[○)(○○△)	[(○))(○○△)	[○)((○○△))	[(○○△))(○)	[○○△)((○))	[(○))((○○△))
[○)(○○△]	[(○))(○○△]	[○)((○○△)]	[(○○△))(○]	[○○△)((○)]	[(○))((○○△)]
[○)[○○△)	[(○))[○○△)	[○)[(○○△))	[(○○△))[○)	[○○△)[(○))	[(○))[(○○△))
[○)[○○△]	[(○))[○○△]	[○)[(○○△)]	[(○○△))[○]	[○○△)[(○)]	[(○))[(○○△)]
[○](○○△)	[(○)](○○△)	[○]((○○△))	[(○○△)](○)	[○○△]((○))	[(○)]((○○△))
[○](○○△]	[(○)](○○△]	[○]((○○△)]	[(○○△)](○]	[○○△]((○)]	[(○)]((○○△)]
[○][○○△)	[(○)][○○△)	[○][(○○△))	[(○○△)][○)	[○○△][(○))	[(○)][(○○△))
[○][○○△]	[(○)][○○△]	[○][(○○△)]	[(○○△)][○]	[○○△][(○)]	[(○)][(○○△)].

5.2.2. R*-System

(○○△)(○)	((○○△))(○)	(○○△)((○))	((○))(○○△)	(○)((○○△))	((○○△))((○))
(○○△)(○]	((○○△))(○]	(○○△)((○)]	((○))(○○△]	(○)((○○△)]	((○○△))((○)]
(○○△)[○)	((○○△))[○)	(○○△)[(○))	((○))[○○△)	(○)[(○○△))	((○○△))[(○))
(○○△)[○]	((○○△))[○]	(○○△)[(○)]	((○))[○○△]	(○)[(○○△)]	((○○△))[(○)]

(○○△](○)	((○○△)](○)	(○○△](○))	((○)](○○△)	(○](○○△))	((○○△)](○))
(○○△](○]	((○○△)](○]	(○○△](○)]	((○)](○○△]	(○](○○△)]	(○○△](○)]
(○○△][○)	((○○△)][○)	(○○△][(○))	((○)][○○△)	(○][(○○△))	((○○△)][(○))
(○○△][○]	((○○△)][○]	(○○△][(○)]	((○)][○○△]	(○][(○○△)]	((○○△)][(○)]

[○○△)(○)	[(○○△))(○)	[○○△)((○))	[(○))(○○△)	[○)((○○△))	[(○○△))((○))
[○○△)(○]	[(○○△))(○]	[○○△)((○)]	[(○))(○○△]	[○)((○○△)]	[(○○△))((○)]
[○○△)[○)	[(○○△))[○)	[○○△)[(○))	[(○))[○○△)	[○)[(○○△))	[(○○△))[(○))
[○○△)[○]	[(○○△))[○]	[○○△)[(○)]	[(○))[○○△]	[○)[(○○△)]	[(○○△))[(○)]

[○○△](○)	[(○○△)](○)	[○○△](○))	[(○)](○○△)	[○](○○△))	[(○○△)](○))
[○○△](○]	[(○○△)](○]	[○○△](○)]	[(○)](○○△]	[○](○○△)]	[(○○△)](○)]
[○○△][○)	[(○○△)][○)	[○○△][(○))	[(○)][○○△)	[○][(○○△))	[(○○△)][(○))
[○○△][○]	[(○○△)][○]	[○○△][(○)]	[(○)][○○△]	[○][(○○△)]	[(○○△)][(○)]

5.3. (1.1, 2.3)-System

5.3.1. R-System

(○)(○△□)	((○))(○△□)	(○)((○△□))	((○△□))(○)	(○△□)((○))	((○))((○△□))
(○)(○△□]	((○))(○△□]	(○)((○△□)]	((○△□))(○]	(○△□)((○)]	((○))((○△□)]
(○)[○△□)	((○))[○△□)	(○)[(○△□))	((○△□))[○)	(○△□)[(○))	((○))[(○△□))
(○)[○△□]	((○))[○△□]	(○)[(○△□)]	((○△□))[○]	(○△□)[(○)]	((○))[(○△□)]

(○](○△□)	((○)](○△□)	(○]((○△□))	((○△□)](○)	(○△□]((○))	((○)]((○△□))
(○](○△□]	((○)](○△□]	(○]((○△□)]	((○△□)](○]	(○△□]((○)]	(○]((○△□)]
(○][○△□)	((○)][○△□)	(○][(○△□))	((○△□)][○)	(○△□][(○))	((○)][(○△□))
(○][○△□]	((○)][○△□]	(○][(○△□)]	((○△□)][○]	(○△□][(○)]	((○)][(○△□)]

[○)(○△□)	[(○))(○△□)	[○)((○△□))	[(○△□))(○)	[○△□)((○))	[(○))((○△□))
[○)(○△□]	[(○))(○△□]	[○)((○△□)]	[(○△□))(○]	[○△□)((○)]	[(○))((○△□)]
[○)[○△□)	[(○))[○△□)	[○)[(○△□))	[(○△□))[○)	[○△□)[(○))	[(○))[(○△□))
[○)[○△□]	[(○))[○△□]	[○)[(○△□)]	[(○△□))[○]	[○△□)[(○)]	[(○))[(○△□)]

[○](○△□)	[(○)](○△□)	[○]((○△□))	[(○△□)](○)	[○△□]((○))	[(○)]((○△□))
[○](○△□]	[(○)](○△□]	[○]((○△□)]	[(○△□)](○]	[○△□]((○)]	[(○)]((○△□)]
[○][○△□)	[(○)][○△□)	[○][(○△□))	[(○△□)][○)	[○△□][(○))	[(○)][(○△□))
[○][○△□]	[(○)][○△□]	[○][(○△□)]	[(○△□)][○]	[○△□][(○)]	[(○)][(○△□)].

5.3.2. R*-System

(○△□)(○)	((○△□))(○)	(○△□)((○))	((○))(○△□)	(○)((○△□))	((○△□))((○))
(○△□)(○]	((○△□))(○]	(○△□)((○)]	((○))(○△□]	(○)((○△□)]	((○△□))((○)]
(○△□)[○)	((○△□))[○)	(○△□)[(○))	((○))[○△□)	(○)[(○△□))	((○△□))[(○))
(○△□)[○]	((○△□))[○]	(○△□)[(○)]	((○))[○△□]	(○)[(○△□)]	((○△□))[(○)]

(○△□](○)	((○△□)](○)	(○△□](○))	((○)](○△□)	(○](○△□))	((○△□)](○))
(○△□](○]	((○△□)](○]	(○△□](○)]	((○)](○△□]	(○](○△□)]	(○△□](○)]
(○△□][○)	((○△□)][○)	(○△□][(○))	((○)][○△□)	(○][(○△□))	((○△□)][(○))
(○△□][○]	((○△□)][○]	(○△□][(○)]	((○)][○△□]	(○][(○△□)]	((○△□)][(○)]

[○△□)(○)	[(○△□))(○)	[○△□)((○))	[(○))(○△□)	[○)((○△□))	[(○△□))((○))
[○△□)(○]	[(○△□))(○]	[○△□)((○)]	[(○))(○△□]	[○)((○△□)]	[(○△□))((○)]
[○△□)[○)	[(○△□))[○)	[○△□)[(○))	[(○))[○△□)	[○)[(○△□))	[(○△□))[(○))
[○△□)[○]	[(○△□))[○]	[○△□)[(○)]	[(○))[○△□]	[○)[(○△□)]	[(○△□))[(○)]

[○△□](○)	[(○△□)](○)	[○△□](○))	[(○)](○△□)	[○](○△□))	[(○△□)](○))
[○△□](○]	[(○△□)](○]	[○△□](○)]	[(○)](○△□]	[○](○△□)]	[(○△□)](○)]
[○△□][○)	[(○△□)][○)	[○△□][(○))	[(○)][○△□)	[○][(○△□))	[(○△□)][(○))
[○△□][○]	[(○△□)][○]	[○△□][(○)]	[(○)][○△□]	[○][(○△□)]	[(○△□)][(○)]

5.4. (1.2, 2.1)-System

5.4.1. R-System

(○○)(○○○) ((○○))(○○○) (○○)((○○○)) ((○○○))(○○) (○○○)((○○)) ((○○))((○○○))
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(○○][○○○) ((○○)][○○○) (○○][(○○○)) ((○○○)][○○) (○○○][(○○)) ((○○)][(○○○))
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[○○)(○○○) [(○○))(○○○) [○○)((○○○)) [(○○○))(○○) [○○○)((○○)) [(○○))((○○○))
[○○)(○○○] [(○○))(○○○] [○○)((○○○)] [(○○○))(○○] [○○○)((○○)] [(○○))((○○○)]
[○○)[○○○) [(○○))[○○○) [○○)[(○○○)) [(○○○))[○○) [○○○)[(○○)) [(○○))[(○○○))
[○○)[○○○] [(○○))[○○○] [○○)[(○○○)] [(○○○))[○○] [○○○)[(○○)] [(○○))[(○○○)]

[○○](○○○) [(○○)](○○○) [○○]((○○○)) [(○○○)](○○) [○○○]((○○)) [(○○)]((○○○))
[○○](○○○] [(○○)](○○○] [○○]((○○○)] [(○○○)](○○] [○○○]((○○)] [(○○)]((○○○)]
[○○][○○○) [(○○)][○○○) [○○][(○○○)) [(○○○)][○○) [○○○][(○○)) [(○○)][(○○○))
[○○][○○○] [(○○)][○○○] [○○][(○○○)] [(○○○)][○○] [○○○][(○○)] [(○○)][(○○○)].

5.4.2. R*-System

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[ooo][oo] [(ooo)][oo] [ooo][(oo)] [(oo)][ooo] [oo][(ooo)] [(ooo)][(oo)]

5.5. (1.2, 2.2)-System

5.5.1. R*-System

(○○)(○○△) ((○○))(○○△) (○○)((○○△)) ((○○△))(○○) (○○△)((○○)) ((○○))((○○△))
(○○)(○○△] ((○○))(○○△] (○○)((○○△)] ((○○△))(○○] (○○△)((○○)] ((○○))((○○△)]
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(○○)[○○△] ((○○))[○○△] (○○)[(○○△)] ((○○△))[○○] (○○△)[(○○)] ((○○))[(○○△)]

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(○○][○○△) ((○○)][○○△) (○○][(○○△)) ((○○△)][○○) (○○△][(○○)) ((○○)][(○○△))
(○○][○○△] ((○○)][○○△] (○○][(○○△)] ((○○△)][○○] (○○△][(○○)] ((○○)][(○○△)]

[○○)(○○△) [(○○))(○○△) [○○)((○○△)) [(○○△))(○○) [○○△)((○○)) [(○○))((○○△))
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[○○)[○○△] [(○○))[○○△] [○○)[(○○△)] [(○○△))[○○] [○○△)[(○○)] [(○○))[(○○△)]

[○○](○○△) [(○○)](○○△) [○○]((○○△)) [(○○△)](○○) [○○△]((○○)) [(○○)]((○○△))
[○○](○○△] [(○○)](○○△] [○○]((○○△)] [(○○△)](○○] [○○△]((○○)] [(○○)]((○○△)]
[○○][○○△) [(○○)][○○△) [○○][(○○△)) [(○○△)][○○) [○○△][(○○)) [(○○)][(○○△))
[○○][○○△] [(○○)][○○△] [○○][(○○△)] [(○○△)][○○] [○○△][(○○)] [(○○)][(○○△)].

5.5.2. R*-System

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5.6. (1.2, 2.3)-System

5.6.1. R-System

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[○○)[○△□) [(○○))[○△□) [○○)[(○△□)) [(○△□))[○○) [○△□)[(○○)) [(○○))[(○△□))
[○○)[○△□] [(○○))[○△□] [○○)[(○△□)] [(○△□))[○○] [○△□)[(○○)] [(○○))[(○△□)]

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[○○](○△□] [(○○)](○△□] [○○]((○△□)] [(○△□)](○○] [○△□]((○○)] [(○○)]((○△□)]
[○○][○△□) [(○○)][○△□) [○○][(○△□)) [(○△□)][○○) [○△□][(○○)) [(○○)][(○△□))
[○○][○△□] [(○○)][○△□] [○○][(○△□)] [(○△□)][○○] [○△□][(○○)] [(○○)][(○△□)].

5.6.2. R*-System

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[○△□)[○○) [(○△□))[○○) [○△□)[(○○)) [(○○))[○△□) [○○)[(○△□)) [(○△□))[(○○))
[○△□)[○○] [(○△□))[○○] [○△□)[(○○)] [(○○))[○△□] [○○)[(○△□)] [(○△□))[(○○)]

[○△□](○○) [(○△□)](○○) [○△□](○○)) [(○○)](○△□) [○○](○△□)) [(○△□)](○○))
[○△□](○○] [(○△□)](○○] [○△□](○○)] [(○○)](○△□] [○○](○△□)] [(○△□)](○○)]
[○△□][○○) [(○△□)][○○) [○△□][(○○)) [(○○)][○△□) [○○][(○△□)) [(○△□)][(○○))
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5.7. (1.3, 2.1)-System

5.7.1. R-System

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[○△][○○○] [(○△)][○○○] [○△][(○○○)] [(○○○)][○△] [○○○][(○△)] [(○△)][(○○○)].

5.7.2. R*-System

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5.8. (1.3, 2.2)-System

5.8.1. R-System

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5.9. (1.3, 2.3)-System

5.9.1. R-System

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5.9.2. R*-System

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6. System der polykontexturalsemiotischen zellulären Automaten

Wie bereits Kaehr (2011) in seiner ersten Arbeit zu polykontexturalen CA festgestellt hatte, haben diese eine ganz andere Gestalt als diejenigen, die auf Conway zurückgehen (vgl. Gardner 1970). Dies trifft in Sonderheit zu auf die polykontexturalsemiotischen CA, die auf der dyadisch-trichotomischen topologischen Zeichenrelaiton $ZR^{2,3}$ basieren. Sie werden im folgenden in der Ordnung der Kenogrammsequenzen von Kap. 5 präsentiert.

6.1. (1.1, 2.1)-System

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6.3. (1.1, 2.3)-System

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6.7. (1.3, 2.1)-System

6.7.1. R-System

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6.8. (1.3, 2.2)-System

6.8.1. R-System

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6.9. (1.3, 2.3)-System

6.9.1. R-System

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