Prof. Dr. Alfred Toth

Quadralektische Zahlen

1. Nach Toth (2015) läßt sich jede Relation quadralektisch darstellen. Als Beispiel stehe die logische Relation

L = (0, 1).

Läßt man die Abhängigkeit der Werte von L zu, bekommt man

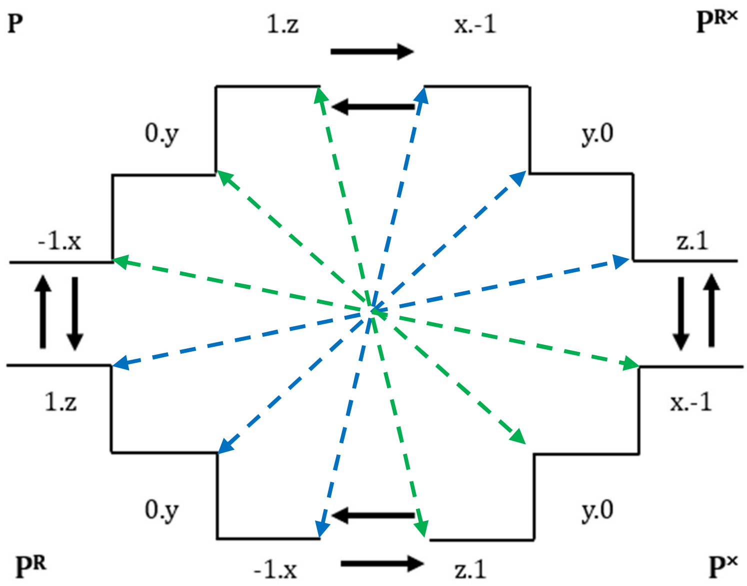
L* = ((0), 1), ((1), 0), (0, (1)), (1, (0)).

Diese jeweils vier Werte können bijektiv auf die durch Dualisation und Reflexion erzeugten vier Relationen possessiv-copossessiver Zahlen abgebildet werden (vgl. Toth 2025a). Für P ergibt sich

$\Sigma Q =$

$$\begin{pmatrix} P = (-1.x, 0.y, 1.z) & P^{\times} = (z.1, y.0, x.-1) \\ P^{R} = (1.z, 0.y, -1.x) & P^{R\times} = (x.-1, y.0, z.1) \end{pmatrix}.$$

Nach Toth (2025b) bekommen wir durch die weitere Abbildung von ΣQ auf ein quadralektisches Zahlenfeld

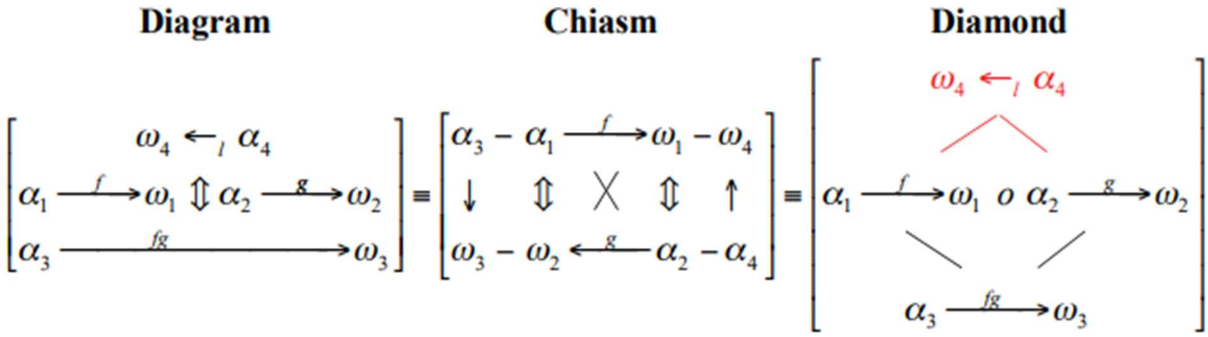


bzw.

$P = (-1.x, 0.y, 1.z)$ $\qquad$ $P^{\times} = (z.1, y.0, x.-1)$

$P^{R} = (1.z, 0.y, -1.x)$ $\qquad$ $P^{R\times} = (x.-1, y.0, z.1)$.

2. Wie Kaehr (2007, S. 53) gezeigt hatte, können proemielle Relationen wie ΣQ und, qua Isomorphie, quadralektische Zahlenfelder, nicht nur diagrammatisch und diamantentheoretisch, sondern auch als chiastische Schemata dargestellt werden,



In der mittleren der drei isomorphen Darstellungsweisen wird also zwischen Morphismen, Heteromorphismen sowie den von Kaehr neu eingeführten Typen der Austauschrelationen unterschieden.

Im folgenden sollen, die Grundlegung in Toth (2025b) weiterführend, sämtliche $3^3 = 27$ möglichen ternär-trichotomischen ΣQ der possessiv-copossessiven Basis-Zahlenrelation P = (-1, 0, 1) als chiastische quadralektische Schemata mit ihren drei Abbildungstypen, d.h. als Saltatorien dargestellt werden.

ΣQ 1 =

$$\left(\begin{array}{ccc} P = (-1.-1, 0.-1, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, -1.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.-1, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, -1.0, -1.1) \end{array}\right)$$

ΣQ 2 =

$$\left(\begin{array}{ccc} P = (-1.-1, 0.-1, 1.0) & \rightleftarrows & P^{\times} = (0.1, -1.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.-1, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, -1.0, 0.1) \end{array}\right)$$

ΣQ 3 =

$$\left(\begin{array}{ccc} P = (-1.-1, 0.-1, 1.1) & \rightleftarrows & P^{\times} = (1.1, -1.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.-1, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, -1.0, 1.1) \end{array}\right)$$

$\Sigma Q\ 4 =$

$$\left(\begin{array}{ccc} P = (-1.-1, 0.0, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, 0.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.0, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, 0.0, -1.1) \end{array} \right)$$

$\Sigma Q\ 5 =$

$$\left(\begin{array}{ccc} P = (-1.-1, 0.0, 1.0) & \rightleftarrows & P^{\times} = (0.1, 0.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.0, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, 0.0, 0.1) \end{array} \right)$$

$\Sigma Q\ 6 =$

$$\left(\begin{array}{ccc} P = (-1.-1, 0.0, 1.1) & \rightleftarrows & P^{\times} = (1.1, 0.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.0, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, 0.0, 1.1) \end{array} \right)$$

$\Sigma Q\ 7 =$

$$\left(\begin{array}{ccc} P = (-1.-1, 0.1, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, 1.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.1, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, 1.0, -1.1) \end{array} \right)$$

$\Sigma Q\ 8 =$

$$\left(\begin{array}{ccc} P = (-1.-1, 0.1, 1.0) & \rightleftarrows & P^{\times} = (0.1, 1.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.1, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, 1.0, 0.1) \end{array} \right)$$

$\Sigma Q\ 9 =$

$$\left(\begin{array}{ccc} P = (-1.-1, 0.1, 1.1) & \rightleftarrows & P^{\times} = (1.1, 1.0, -1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.1, -1.-1) & \rightleftarrows & P^{R\times} = (-1.-1, 1.0, 1.1) \end{array} \right)$$

$\Sigma Q\ 10 =$

$$\left(\begin{array}{ccc} P = (-1.0, 0.-1, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, -1.0, 0.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.-1, -1.0) & \rightleftarrows & P^{R\times} = (0.-1, -1.0, -1.1) \end{array}\right)$$

$\Sigma Q\ 11 =$

$$\left(\begin{array}{ccc} P = (-1.0, 0.-1, 1.0) & \rightleftarrows & P^{\times} = (0.1, -1.0, 0.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.-1, -1.0) & \rightleftarrows & P^{R\times} = (0.-1, -1.0, 0.1) \end{array}\right)$$

$\Sigma Q\ 12 =$

$$\left(\begin{array}{ccc} P = (-1.0, 0.-1, 1.1) & \rightleftarrows & P^{\times} = (1.1, -1.0, 0.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.-1, -1.0) & \rightleftarrows & P^{R\times} = (0.-1, -1.0, 1.1) \end{array}\right)$$

$\Sigma Q\ 13 =$

$$\left(\begin{array}{ccc} P = (-1.0, 0.0, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, 0.0, 0.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.0, -1.0) & \rightleftarrows & P^{R\times} = (0.-1, 0.0, -1.1) \end{array}\right)$$

$\Sigma Q\ 14 =$

$$\left(\begin{array}{ccc} P = (-1.0, 0.0, 1.0) & \rightleftarrows & P^{\times} = (0.1, 0.0, 0.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.0, -1.0) & \rightleftarrows & P^{R\times} = (0.-1, 0.0, 0.1) \end{array}\right)$$

$\Sigma Q\ 15 =$

$$\left(\begin{array}{ccc} P = (-1.0, 0.0, 1.1) & \rightleftarrows & P^{\times} = (1.1, 0.0, 0.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.0, -1.0) & \rightleftarrows & P^{R\times} = (0.-1, 0.0, 1.1) \end{array}\right)$$

$\Sigma Q\ 16 =$

$$\left(\begin{array}{ccc} P = (-1.0,\ 0.1,\ 1.-1) & \rightleftarrows & P^{\times} = (-1.1,\ 1.0,\ 0.-1) \\ \uparrow\downarrow & & \uparrow\downarrow \\ P^{R} = (1.-1,\ 0.1,\ -1.0) & \rightleftarrows & P^{R\times} = (0.-1,\ 1.0,\ -1.1) \end{array}\right)$$

$\Sigma Q\ 17 =$

$$\left(\begin{array}{ccc} P = (-1.0,\ 0.1,\ 1.0) & \rightleftarrows & P^{\times} = (0.1,\ 1.0,\ 0.-1) \\ \uparrow\downarrow & & \uparrow\downarrow \\ P^{R} = (1.0,\ 0.1,\ -1.0) & \rightleftarrows & P^{R\times} = (0.-1,\ 1.0,\ 0.1). \end{array}\right)$$

$\Sigma Q\ 18 =$

$$\left(\begin{array}{ccc} P = (-1.0,\ 0.1,\ 1.1) & \rightleftarrows & P^{\times} = (1.1,\ 1.0,\ 0.-1) \\ \uparrow\downarrow & & \uparrow\downarrow \\ P^{R} = (1.1,\ 0.1,\ -1.0) & \rightleftarrows & P^{R\times} = (0.-1,\ 1.0,\ 1.1) \end{array}\right)$$

$\Sigma Q\ 19 =$

$$\left(\begin{array}{ccc} P = (-1.1,\ 0.-1,\ 1.-1) & \rightleftarrows & P^{\times} = (-1.1,\ -1.0,\ 1.-1) \\ \uparrow\downarrow & & \uparrow\downarrow \\ P^{R} = (1.-1,\ 0.-1,\ -1.1) & \rightleftarrows & P^{R\times} = (1.-1,\ -1.0,\ -1.1) \end{array}\right)$$

$\Sigma Q\ 20 =$

$$\left(\begin{array}{ccc} P = (-1.1,\ 0.-1,\ 1.0) & \rightleftarrows & P^{\times} = (0.1,\ -1.0,\ 1.-1) \\ \uparrow\downarrow & & \uparrow\downarrow \\ P^{R} = (1.0,\ 0.-1,\ -1.1) & \rightleftarrows & P^{R\times} = (1.-1,\ -1.0,\ 0.1) \end{array}\right)$$

$\Sigma Q\ 21 =$

$$\left(\begin{array}{ccc} P = (-1.1,\ 0.-1,\ 1.1) & \rightleftarrows & P^{\times} = (1.1,\ -1.0,\ 1.-1) \\ & & \\ P^{R} = (1.1,\ 0.-1,\ -1.1) & \rightleftarrows & P^{R\times} = (1.-1,\ -1.0,\ 1.1) \end{array}\right)$$

ΣQ 22 =

$$\left(\begin{array}{ccc} P = (-1.1, 0.0, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, 0.0, 1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.0, -1.1) & \rightleftarrows & P^{R\times} = (1.-1, 0.0, -1.1) \end{array}\right)$$

ΣQ 23 =

$$\left(\begin{array}{ccc} P = (-1.1, 0.0, 1.0) & \rightleftarrows & P^{\times} = (0.1, 0.0, 1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.0, -1.1) & \rightleftarrows & P^{R\times} = (1.-1, 0.0, 0.1) \end{array}\right)$$

ΣQ 24 =

$$\left(\begin{array}{ccc} P = (-1.1, 0.0, 1.1) & \rightleftarrows & P^{\times} = (1.1, 0.0, 1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.0, -1.1) & \rightleftarrows & P^{R\times} = (1.-1, 0.0, 1.1) \end{array}\right)$$

ΣQ 25 =

$$\left(\begin{array}{ccc} P = (-1.1, 0.1, 1.-1) & \rightleftarrows & P^{\times} = (-1.1, 1.0, 1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.-1, 0.1, -1.1) & \rightleftarrows & P^{R\times} = (1.-1, 1.0, -1.1) \end{array}\right)$$

ΣQ 26 =

$$\left(\begin{array}{ccc} P = (-1.1, 0.1, 1.0) & \rightleftarrows & P^{\times} = (0.1, 1.0, 1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.0, 0.1, -1.1) & \rightleftarrows & P^{R\times} = (1.-1, 1.0, 0.1) \end{array}\right)$$

ΣQ 27 =

$$\left(\begin{array}{ccc} P = (-1.1, 0.1, 1.1) & \rightleftarrows & P^{\times} = (1.1, 1.0, 1.-1) \\ \upharpoonleft\downharpoonright & & \upharpoonleft\downharpoonright \\ P^{R} = (1.1, 0.1, -1.1) & \rightleftarrows & P^{R\times} = (1.-1, 1.0, 1.1) \end{array}\right)$$

Possessiv-copossessive Zahlen der Form

$Q = (P, P^{\times}, P^{R}, P^{R\times})$

wollen wir QUADRALEKTISCHE ZAHLEN nennen.

Literatur

Kaehr, Rudolf, The Book of Diamonds. Glasgow, U.K. 2007

Toth, Alfred, Die Logik des Jägers Gracchus. In: Electronic Journal for Mathematical Semiotics, 2015

Toth, Alfred, Strukturtheorie possessiv-copossessiver Zahlen. In: Electronic Journal for Mathematical Semiotics, 2025a

Toth, Alfred, Proömialität und Chiasmus bei den possessiv-copossessiven Zahlen. In: Electronic Journal for Mathematical Semiotics, 2025b

17.3.2025