Prof. Dr. Alfred Toth

Zur Topologie semiotischer Grenzen und Ränder

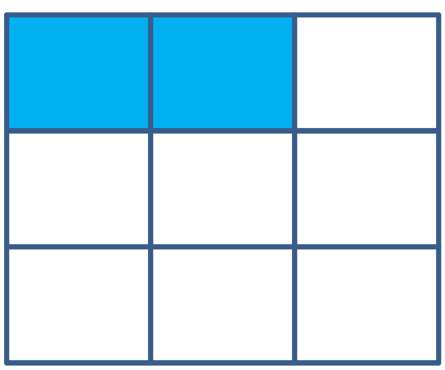
1. Nach Toth (2013a) hat jedes Zeichen zwei Ränder, einen linken (involvativen) Rand $\mathcal{R}_\lambda$(Zkl) und einen rechten, suppletiven Rand $\mathcal{R}_\rho$(Zkl). Nach Toth (2013b) können die Grenzen zwischen zwei (nicht notwendig adjazenten) Zeichen durch $G(Zkl_i, Zkl_j) = Zkl_i \cap Zkl_j$ bestimmt werden. Die Grenzen von Rändern bzw. Ränder von Grenzen von Zeichen bestimmen sich daher durch durch das Quadrupel

$$Q = (G(Zkl_i, Zkl_j) \cap \mathcal{R}_\lambda(Zkl_i), G(Zkl_i, Zkl_j) \cap \mathcal{R}_\rho(Zkl_i),$$
$$G(Zkl_i, Zkl_j) \cap \mathcal{R}_\lambda(Zkl_j), G(Zkl_i, Zkl_j) \cap \mathcal{R}_\rho(Zkl_j)).$$

Im folgenden wird eine schematische Darstellungweise für die semiotischen Grenzen und Ränder von Paaren adjazenter Zeichenklassen eingeführt, um den am Schluße von Toth (2013b) formulierten Satz der algebraischen Semiotik zu illustrieren. Grenzen werden blau, Ränder grün und Grenzen von Rändern bzw. Ränder von Grenzen rot markiert.

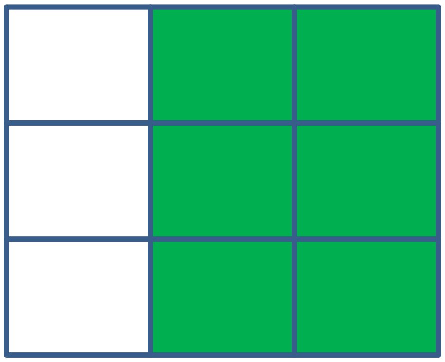
2.1.

G((3.1, 2.1, 1.1), (3.1, 2.1, 1.2)) = (1.1, 1.2)

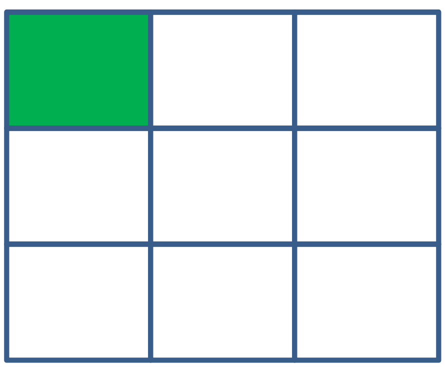


$\mathcal{R}_\lambda$(3.1, 2.1, 1.1) = Ø

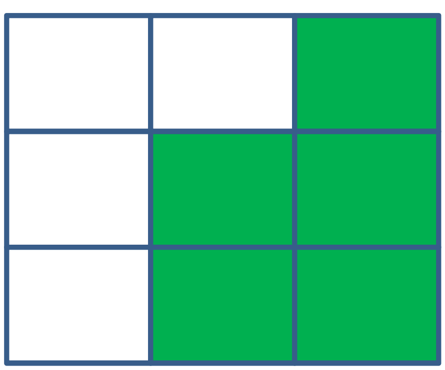
$\mathcal{R}_\rho(3.1, 2.1, 1.1) = \{(3.2), (3.3), (2.2), (2.3), (1.2), (1.3)\}$



$\mathcal{R}_\lambda(3.1, 2.1, 1.2) = (1.1)$



$\mathcal{R}_\rho(3.1, 2.1, 1.2) = \{(3.2), (3.3), (2.2), (2.3), (1.3)\}$



Somit haben wir

$G((3.1, 2.1, 1.1), (3.1, 2.1, 1.2)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.1) = \emptyset$

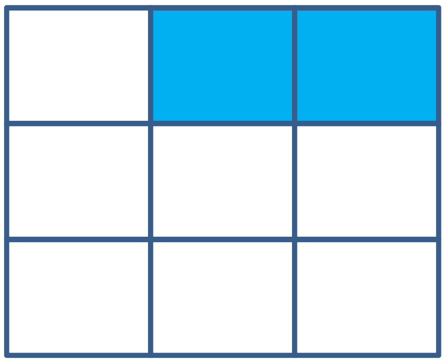
$G((3.1, 2.1, 1.1), (3.1, 2.1, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.1) = (1.2)$

$G((3.1, 2.1, 1.1), (3.1, 2.1, 1.2)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.2) = (1.1)$

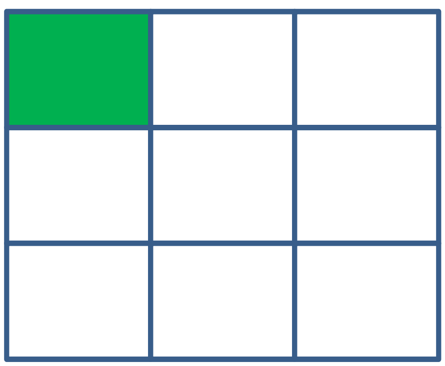
G((3.1, 2.1, 1.1), (3.1, 2.1, 1.2)) ∩ $\mathcal{R}_\rho$(3.1, 2.1, 1.2) = Ø.

2.2.

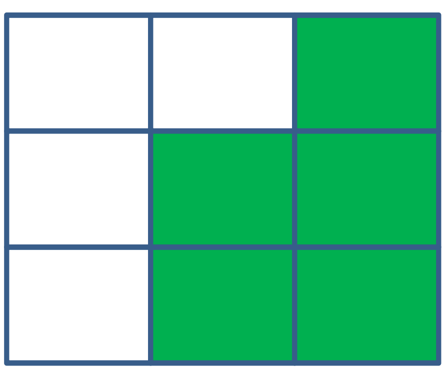
G((3.1, 2.1, 1.2), (3.1, 2.1, 1.3)) = (1.2, 1.3)



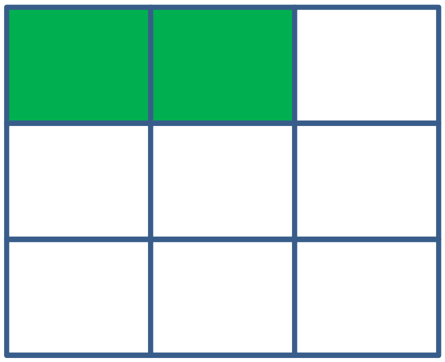
$\mathcal{R}_\lambda$(3.1, 2.1, 1.2) = (1.1)



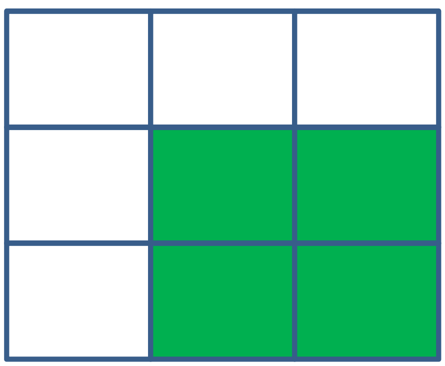
$\mathcal{R}_\rho$(3.1, 2.1, 1.2) = {(3.2), (3.3), (2.2), (2.3), (1.3)}



$\mathcal{R}_\lambda(3.1, 2.1, 1.3) = \{(1.1), (1.2)\}$



$\mathcal{R}_\rho(3.1, 2.1, 1.3) = \{(3.2), (3.3), (2.2), (2.3)\}$



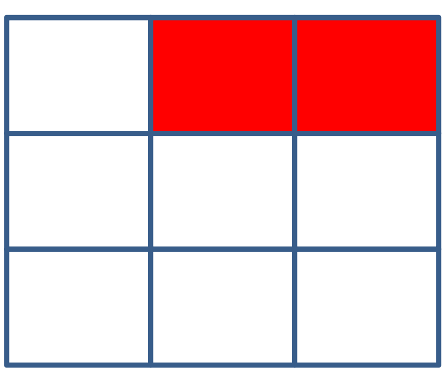
Somit haben wir

$G((3.1, 2.1, 1.2), (3.1, 2.1, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.2) = \emptyset$

$G((3.1, 2.1, 1.2), (3.1, 2.1, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.2) = (1.3)$

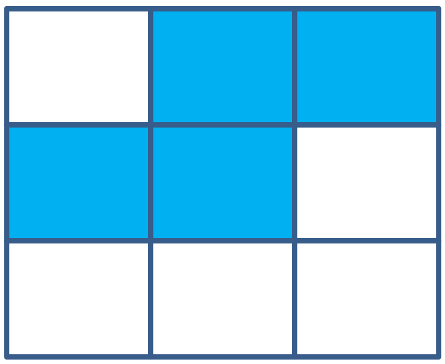
$G((3.1, 2.1, 1.2), (3.1, 2.1, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.3) = (1.2)$

$G((3.1, 2.1, 1.2), (3.1, 2.1, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.3) = \emptyset.$

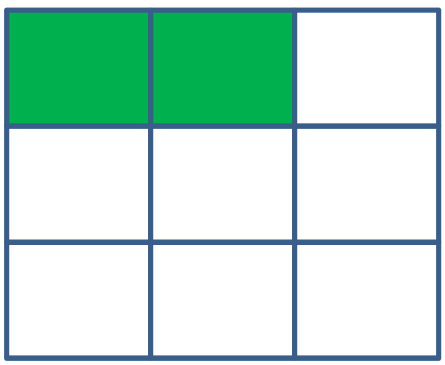


2.3.

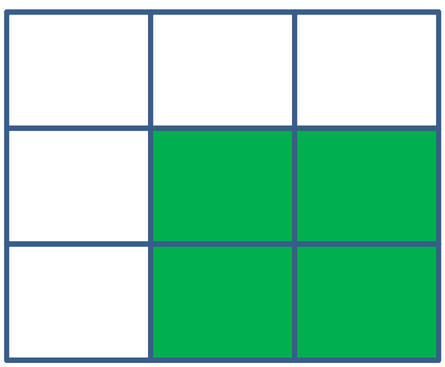
$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.2)) = ((2.1, 2.2), (1.2, 1.3))$



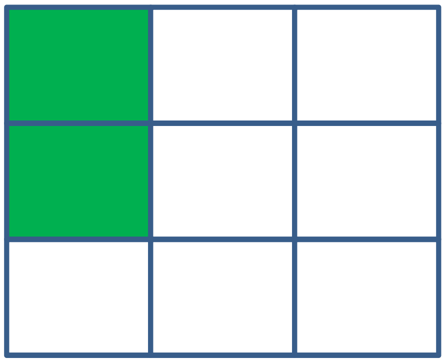
$\mathcal{R}_\lambda(3.1, 2.1, 1.3) = \{(1.1), (1.2)\}$



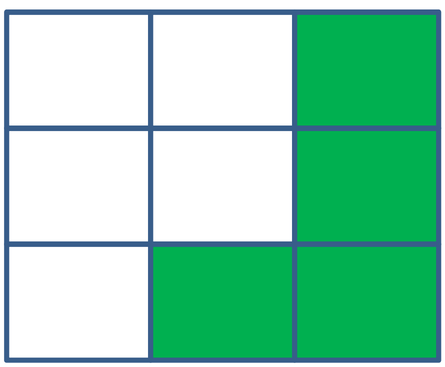
$\mathcal{R}_\rho(3.1, 2.1, 1.3) = \{(3.2), (3.3), (2.2), (2.3)\}$



$\mathcal{R}_\lambda(3.1, 2.2, 1.2) = \{(1.1), (2.1)\}$



$\mathcal{R}_\rho(3.1, 2.2, 1.2) = \{(3.2), (3.3), (2.3), (1.3)\}$



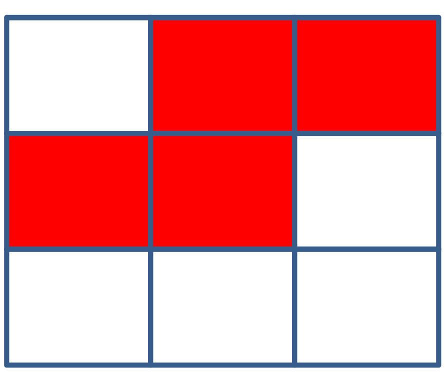
Somit haben wir

$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.3) = (1.2)$

$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.3) = (2.2)$

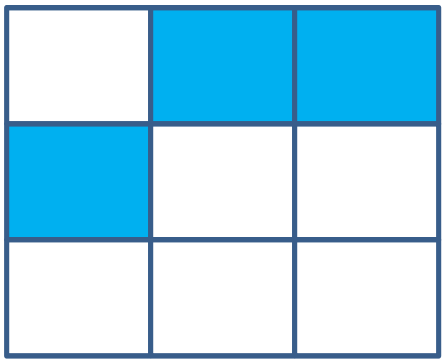
$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\lambda(3.1, 2.2, 1.2) = (2.1)$

$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.2) = (1.3)$.

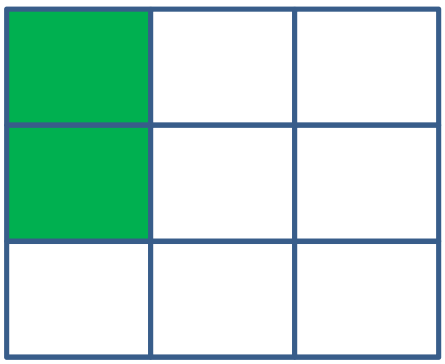


2.4.

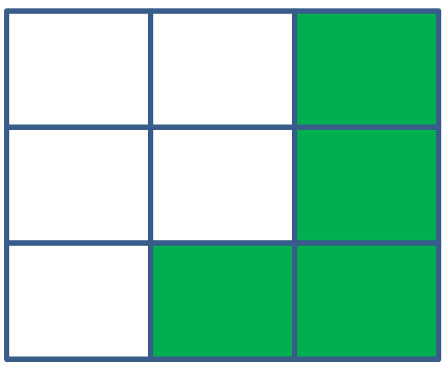
G((3.1, 2.2, 1.2), (3.1, 2.2, 1.3)) = (2.2, (1.2, 1.3))



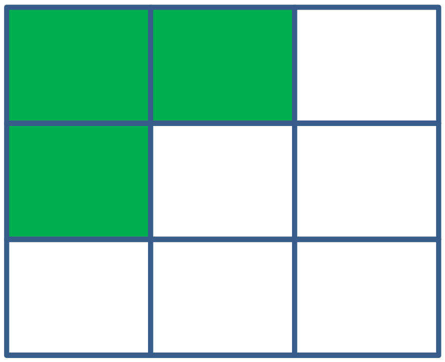
$\mathcal{R}_\lambda$(3.1, 2.2, 1.2) = {(1.1), (2.1)}



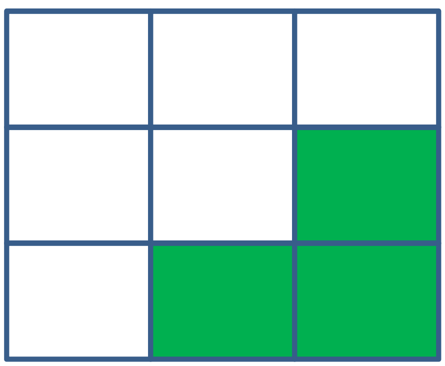
$\mathcal{R}_\rho$(3.1, 2.2, 1.2) = {(3.2), (3.3), (2.3), (1.3)}



$\mathcal{R}_\lambda(3.1, 2.2, 1.3) = \{(1.1), (1.2), (2.1)\}$



$\mathcal{R}_\rho(3.1, 2.2, 1.3) = \{(3.2), (3.3), (2.3)\}$



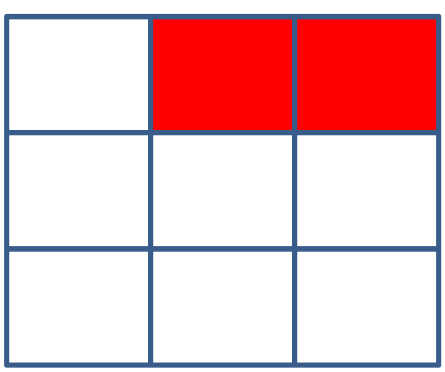
Somit haben wir

$G((3.1, 2.2, 1.2), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.2, 1.2) = \emptyset$

$G((3.1, 2.2, 1.2), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.2) = (1.3)$

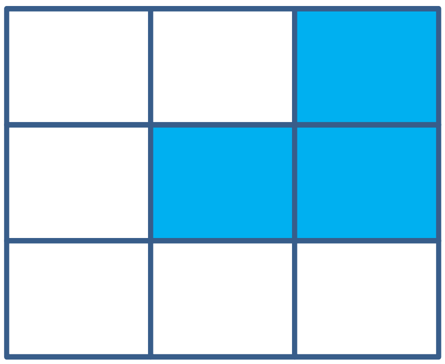
$G((3.1, 2.2, 1.2), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.2, 1.3) = (1.2)$

$G((3.1, 2.2, 1.2), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.3) = \emptyset.$

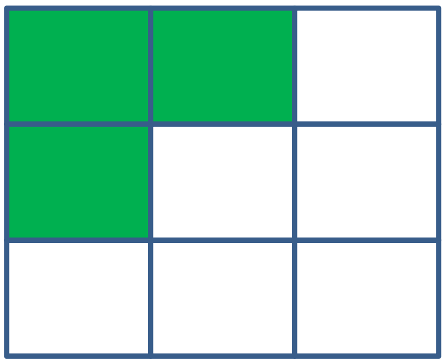


2.5.

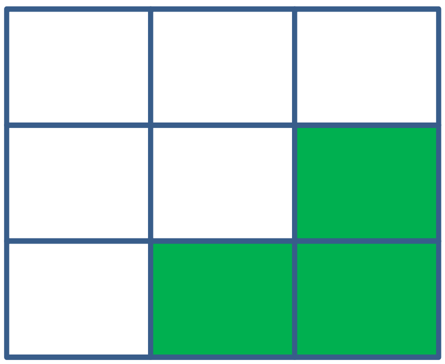
$G((3.1, 2.2, 1.3), (3.1, 2.3, 1.3)) = ((2.2, 2.3), 1.3)$



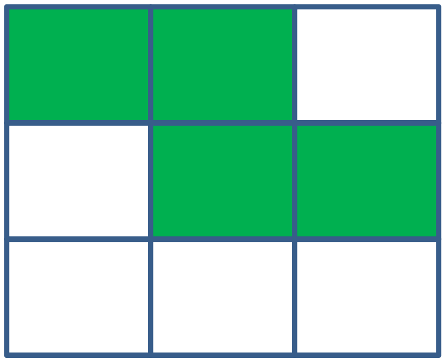
$\mathcal{R}_{\lambda}(3.1, 2.2, 1.3) = \{(1.1), (1.2), (2.1)\}$



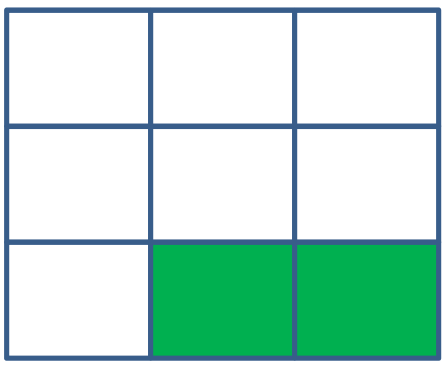
$\mathcal{R}_{\rho}(3.1, 2.2, 1.3) = \{(3.2), (3.3), (2.3)\}$



$\mathcal{R}_\lambda(3.1, 2.3, 1.3) = \{(1.1), (1.2), (2.2), (2.3)\}$



$\mathcal{R}_\rho(3.1, 2.3, 1.3) = \{(3.2), (3.3)\}$



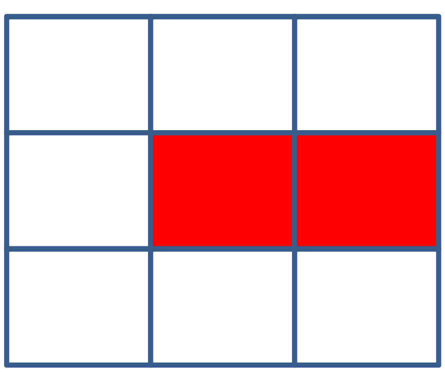
Somit haben wir

$G((3.1, 2.2, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.2, 1.3) = \emptyset$

$G((3.1, 2.2, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.3) = (2.3)$

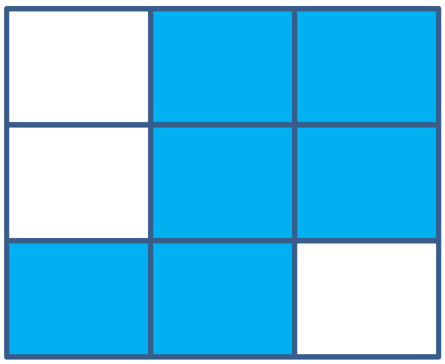
$G((3.1, 2.2, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.3, 1.3) = (2.2, 2.3)$

$G((3.1, 2.2, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.3, 1.3) = \emptyset$.

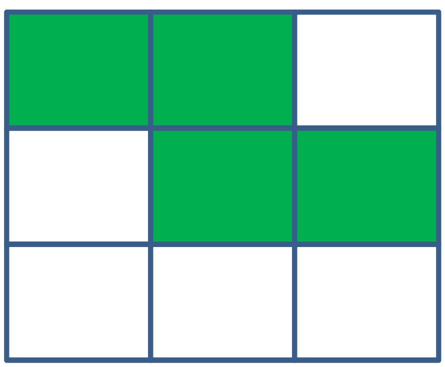


2.6.

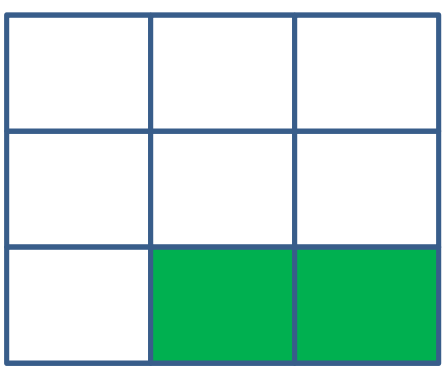
$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.2)) = ((3.1, 3.2), (2.2, 2.3), (1.2, 1.3))$



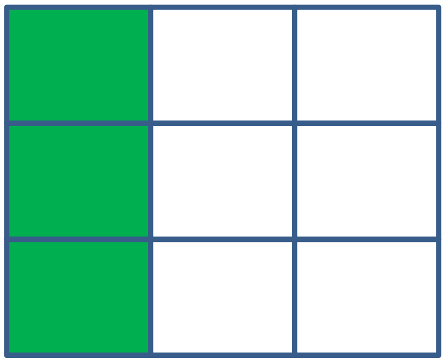
$\mathcal{R}_\lambda(3.1, 2.3, 1.3) = \{(1.1), (1.2), (2.2), (2.3)\}$



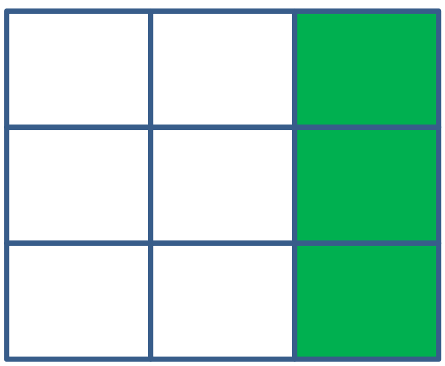
$\mathcal{R}_\rho(3.1, 2.3, 1.3) = \{(3.2), (3.3)\}$



$\mathcal{R}_\lambda(3.2, 2.2, 1.2) = \{(1.1), (2.1), (3.1)\}$



$\mathcal{R}_\rho(3.2, 2.2, 1.2) = \{(3.3), (2.3), (1.3)\}$



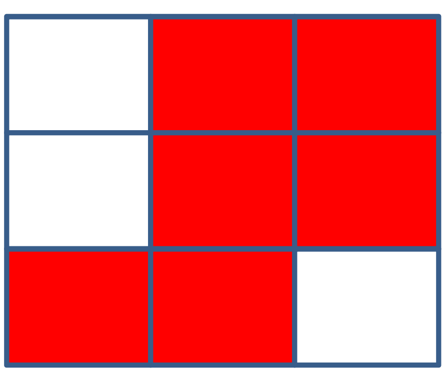
Somit haben wir

$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.2)) \cap \mathcal{R}_\lambda(3.1, 2.3, 1.3) = (2.2, 2.3, 1.2)$

$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.3, 1.3) = (3.2)$

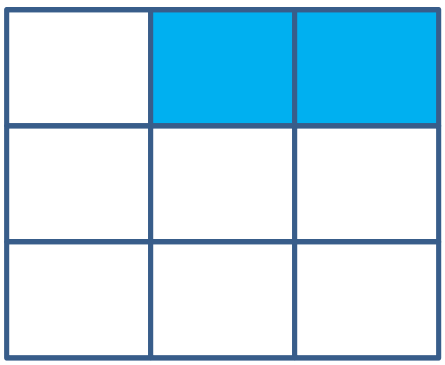
$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.2)) \cap \mathcal{R}_\lambda(3.2, 2.2, 1.2) = (3.1)$

$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.2) = (2.3, 1.3)$.

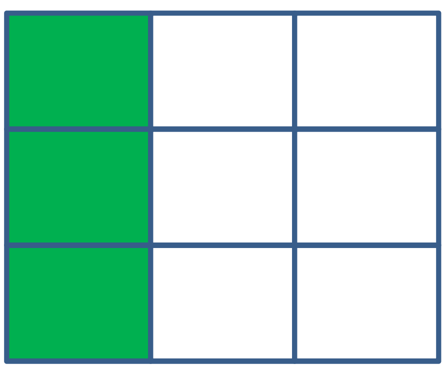


2.7.

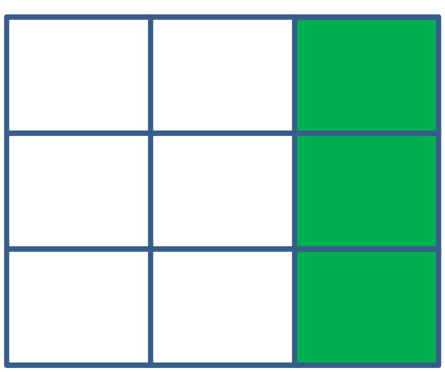
$G((3.2, 2.2, 1.2), (3.2, 2.2, 1.3)) = (1.2, 1.3)$



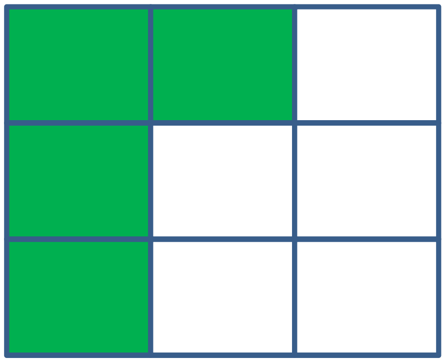
$\mathcal{R}_\lambda(3.2, 2.2, 1.2) = \{(1.1), (2.1), (3.1)\}$



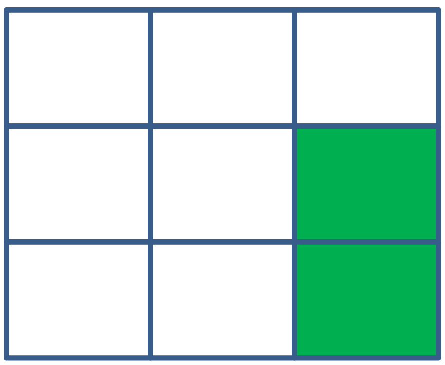
$\mathcal{R}_\rho(3.2, 2.2, 1.2) = \{(3.3), (2.3), (1.3)\}$



$\mathcal{R}_\lambda(3.2, 2.2, 1.3) = \{(1.1), (1.2), (2.1), (3.1)\}$



$\mathcal{R}_\rho(3.2, 2.2, 1.3) = \{(3.3), (2.3)\}$



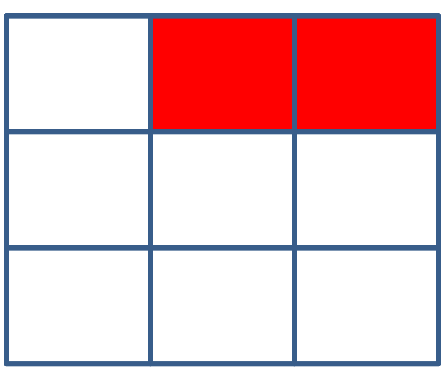
Somit haben wir

$G((3.2, 2.2, 1.2), (3.2, 2.2, 1.3)) \cap \mathcal{R}_\lambda(3.2, 2.2, 1.2) = \emptyset$

$G((3.2, 2.2, 1.2), (3.2, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.2) = (1.3)$

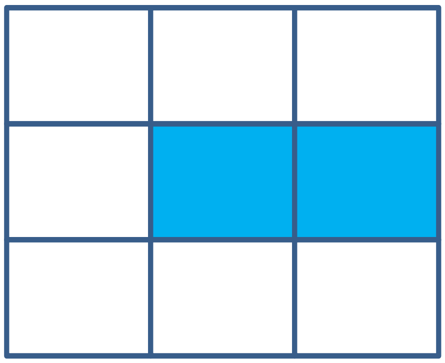
$G((3.2, 2.2, 1.2), (3.2, 2.2, 1.3)) \cap \mathcal{R}_\lambda(3.2, 2.2, 1.3) = (1.2)$

$G((3.2, 2.2, 1.2), (3.2, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.3) = \emptyset.$

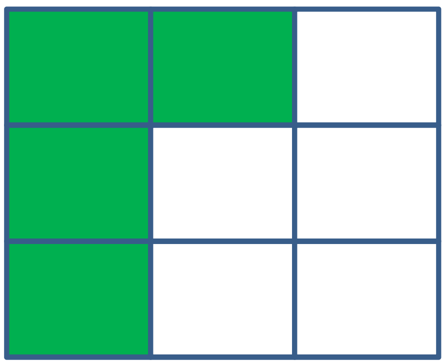


2.8.

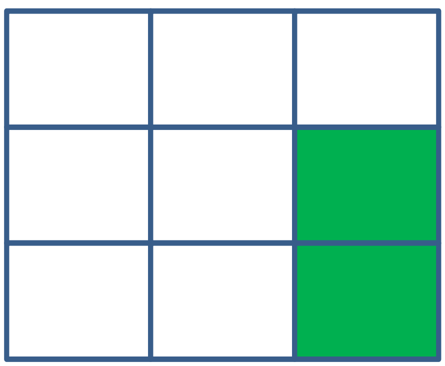
G((3.2, 2.2, 1.3), (3.2, 2.3, 1.3)) = (2.2, 2.3)



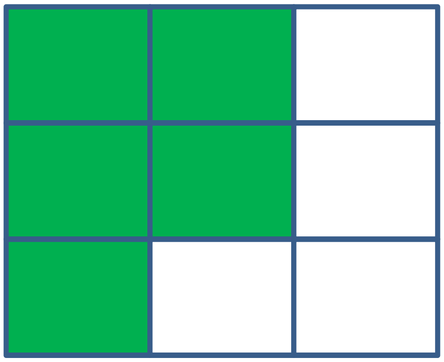
$\mathcal{R}_\lambda$(3.2, 2.2, 1.3) = {(1.1), (1.2), (2.1), (3.1)}



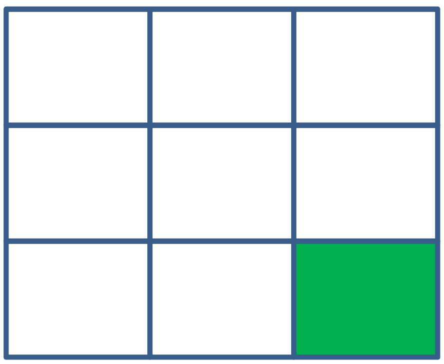
$\mathcal{R}_\rho$(3.2, 2.2, 1.3) = {(3.3), (2.3)}



$\mathcal{R}_{\lambda}(3.2, 2.3, 1.3) = \{(1.1), (1.2), (2.1), (2.2), (3.1)\}$



$\mathcal{R}_{\rho}(3.2, 2.3, 1.3) = (3.3)$



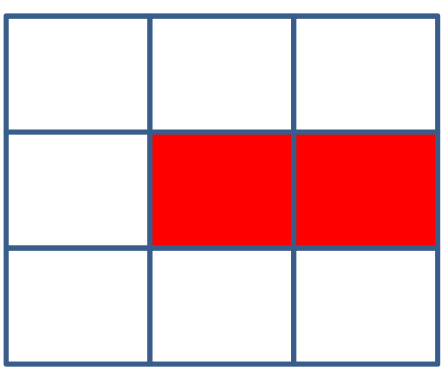
Somit haben wir

$G((3.2, 2.2, 1.3), (3.2, 2.3, 1.3)) \cap \mathcal{R}_{\lambda}(3.2, 2.2, 1.3) = \emptyset$

$G((3.2, 2.2, 1.3), (3.2, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.2, 2.2, 1.3) = (2.3)$

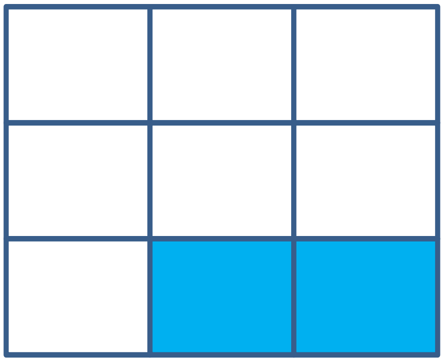
$G((3.2, 2.2, 1.3), (3.2, 2.3, 1.3)) \cap \mathcal{R}_{\lambda}(3.2, 2.3, 1.3) = (2.2)$

$G((3.2, 2.2, 1.3), (3.2, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.2, 2.3, 1.3) = \emptyset$.

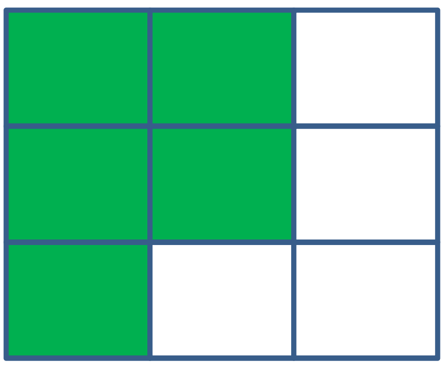


2.9.

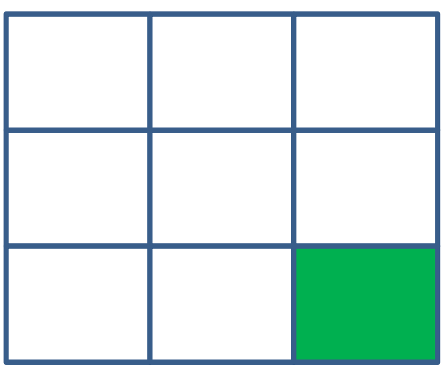
$G((3.2, 2.3, 1.3), (3.3, 2.3, 1.3)) = (3.2, 3.3)$



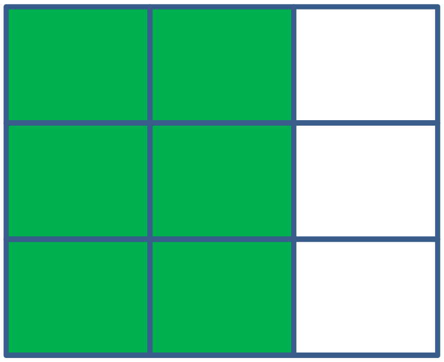
$\mathcal{R}_{\lambda}(3.2, 2.3, 1.3) = \{(1.1), (1.2), (2.1), (2.2), (3.1)\}$



$\mathcal{R}_{\rho}(3.2, 2.3, 1.3) = (3.3)$



$\mathcal{R}_\lambda(3.3, 2.3, 1.3) = \{(1.1), (1.2), (2.1), (2.2), (3.1), (3.2)\}$



$\mathcal{R}_\rho(3.3, 2.3, 1.3) = \emptyset$

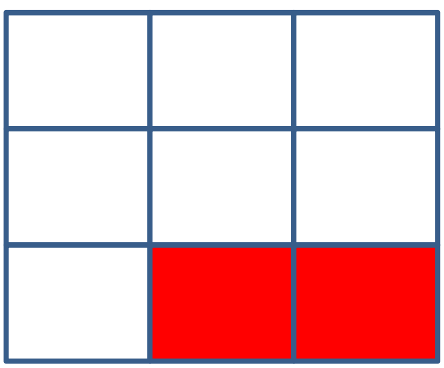
Somit haben wir

$G((3.2, 2.3, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.2, 2.3, 1.3) = \emptyset$

$G((3.2, 2.3, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.3, 1.3) = (3.3)$

$G((3.2, 2.3, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.3, 2.3, 1.3) = (3.2)$

$G((3.2, 2.3, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.3, 2.3, 1.3) = \emptyset$.



Der in Toth (2013b) erhaltene Satz der algebraischen Semiotik lautet

SATZ. Sei $G(Zkl_n, Zkl_{n+1}) = ((a.b), (c.d))$. Dann gilt: Wenn $G(Zkl_n, Zkl_{n+1}) \cap \mathcal{R}_\lambda(Zkl_n) = G(Zkl_n, Zkl_{n+1}) \cap \mathcal{R}_\rho(Zkl_{n+1}) = \emptyset$ ist, dann ist $G(Zkl_n, Zkl_{n+1}) \cap \mathcal{R}_\rho(Zkl_n) = (c.d)$ und $G(Zkl_n, Zkl_{n+1}) \cap \mathcal{R}_\lambda(Zkl_{n+1}) = (a.b)$.

Ist $G(Zkl_n, Zkl_{n+1}) \cap \mathcal{R}_\lambda(Zkl_n) \neq \emptyset$ oder $G(Zkl_n, Zkl_{n+1}) \cap \mathcal{R}_\rho(Zkl_{n+1}) \neq \emptyset$, dann gilt der Satz selbstverständlich nicht. Allerdings ist vorderhand unklar, ob es Sätze gibt, welche diese Resultate beschreiben.

Literatur

Toth, Alfred, Semiotische Involvation und Suppletion I-IV. In: Electronic Journal for Mathematical Semiotics, 2013a

Toth, Alfred, Semiotische Grenzen und Ränder. In: Electronic Journal for Mathematical Semiotics, 2013b

2.12.2013