Prof. Dr. Alfred Toth

Zur Topologie semiotischer Grenzen und Ränder II

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

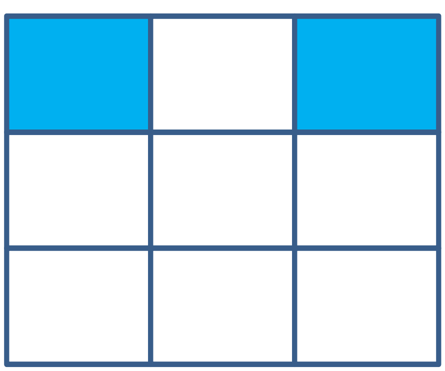
$$Q = (G(Zkl_i, Zkl_j) \cap \mathcal{R}_\lambda(Zkl_i), G(Zkl_i, Zkl_j) \cap \mathcal{R}_\rho(Zkl_i),$$
$$G(Zkl_i, Zkl_j) \cap \mathcal{R}_\lambda(Zkl_j), G(Zkl_i, Zkl_j) \cap \mathcal{R}_\rho(Zkl_j)).$$

Im folgenden werden im Anschluß an Toth (2013c) Paare von nicht-adjazenten Zeichenklassen untersucht und auf diese Weise der innerhalb der Semiotik bislang nicht definierbare Begriff der Nachbarschaft definiert.

2.1. Die Grenzen und Ränder für die semiotische Nachbarschaft $<n, n+m>$ mit $m = 1$ wurden bereits in Toth (2013a, b) untersucht.

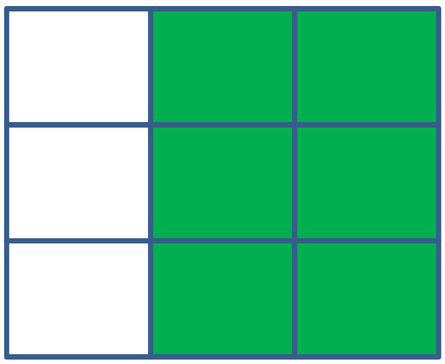
2.2. Grenzen und Ränder für die semiotische Nachbarschaft $<n, n + m>$ mit $m = 2$.

2.2.1. G((3.1, 2.1, 1.1), (3.1, 2.1, 1.3)) = (1.1, 1.3)

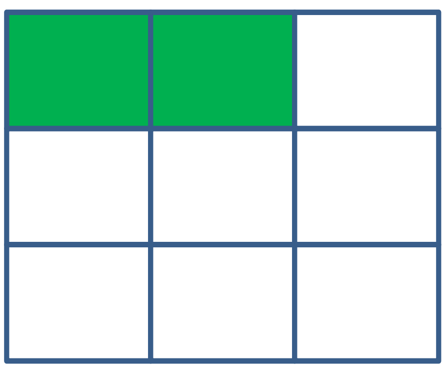


$\mathcal{R}_\lambda(3.1, 2.1, 1.1) = \emptyset$

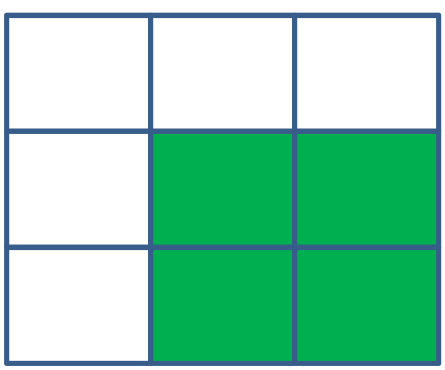
$\mathcal{R}_\rho(3.1, 2.1, 1.1) = \{(3.2), (3.3), (2.2), (2.3), (1.2), (1.3)\}$



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



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



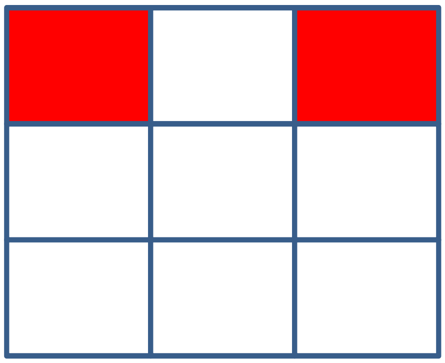
Wir haben somit

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

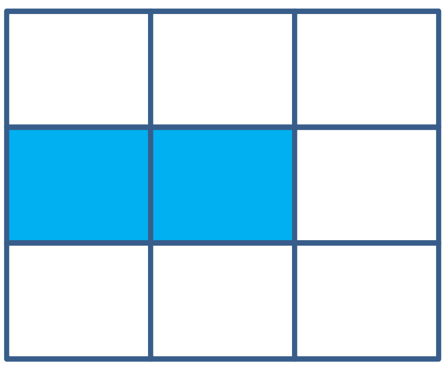
$G((3.1, 2.1, 1.1), (3.1, 2.1, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.1) = (1.3)$

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

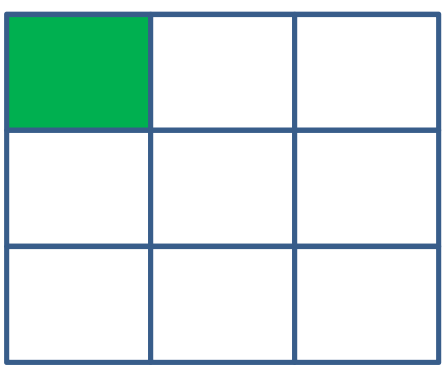
$G((3.1, 2.1, 1.1), (3.1, 2.1, 1.3)) \cap \mathcal{R}_{\rho}(3.1, 2.1, 1.3) = \emptyset$.



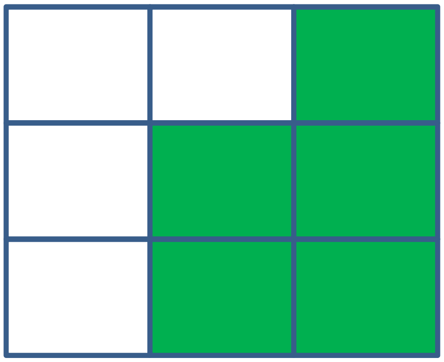
2.2.2. $G((3.1, 2.1, 1.2), (3.1, 2.2, 1.2)) = (2.1, 2.2)$



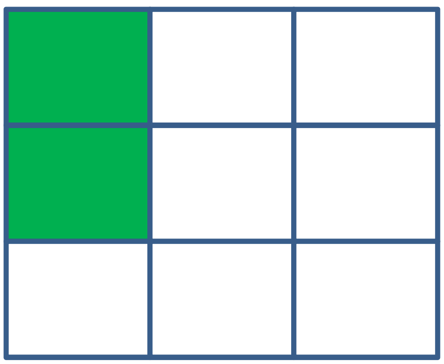
$\mathcal{R}_{\lambda}(3.1, 2.1, 1.2) = (1.1)$



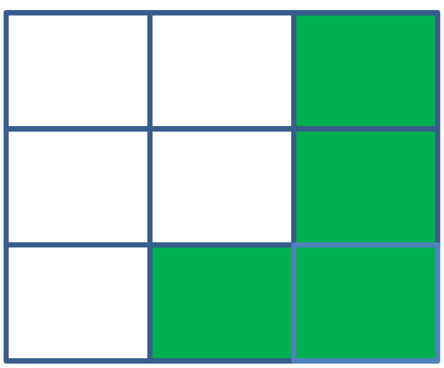
$\mathcal{R}_\rho(3.1, 2.1, 1.2) = \{(3.2), (3.3), (2.2), (2.3), (1.3)\}$



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



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



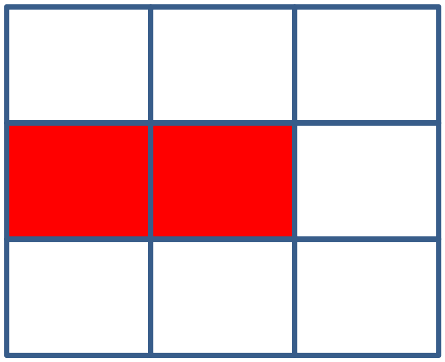
Wir haben somit

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

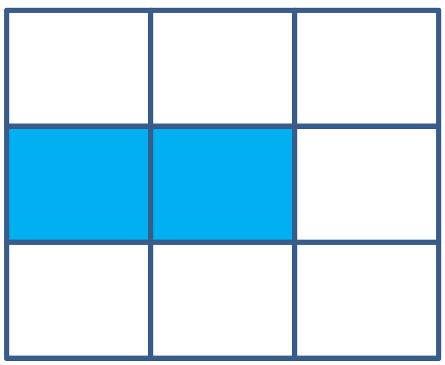
$G((3.1, 2.1, 1.2), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.2) = (2.2)$

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

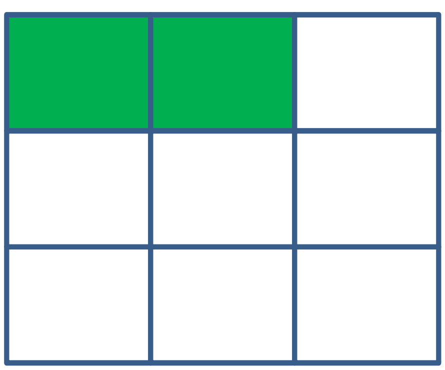
$G((3.1, 2.1, 1.2), (3.1, 2.2, 1.2)) \cap \mathcal{R}_{\rho}(3.1, 2.2, 1.2) = \emptyset$.



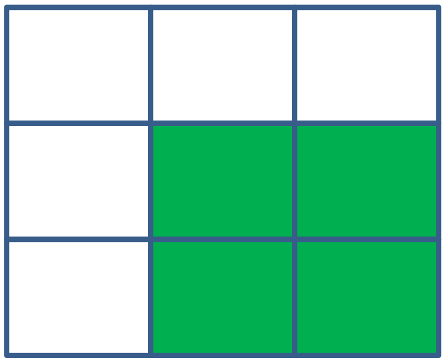
2.2.3. $G((3.1, 2.1, 1.3), (3.1, 2.2, 1.3)) = (2.1, 2.2)$



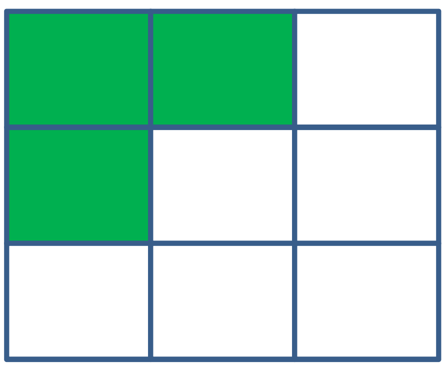
$\mathcal{R}_{\lambda}(3.1, 2.1, 1.3) = \{(1.1), (1.2)\}$



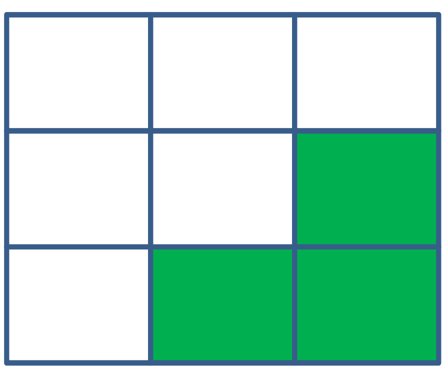
$\mathcal{R}_\rho(3.1, 2.1, 1.3) = \{(3.2), (3.3), (2.2), (2.3)\}$



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



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



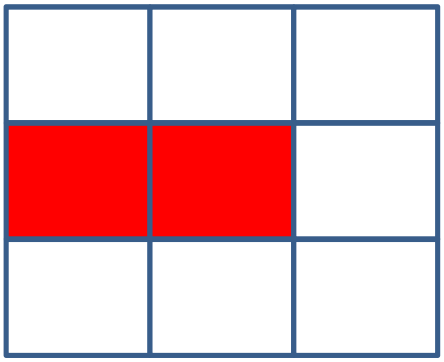
Wir haben somit

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

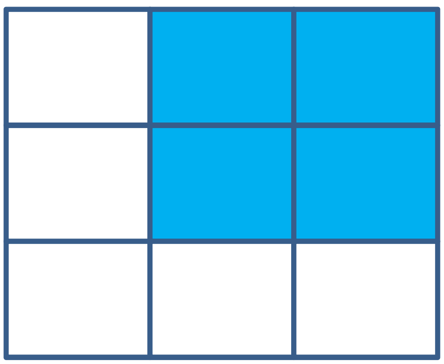
$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.3) = (2.2)$

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

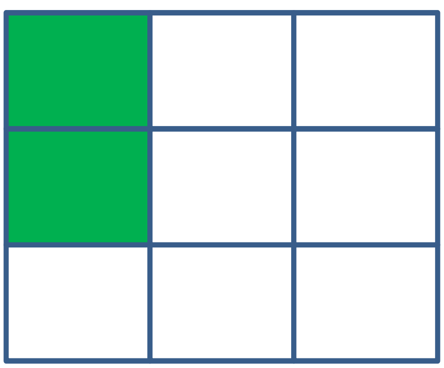
$G((3.1, 2.1, 1.3), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.3) = \emptyset$.



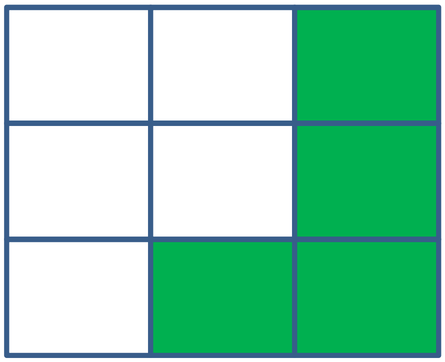
2.2.4. $G((3.1, 2.2, 1.2), (3.1, 2.3, 1.3)) = ((2.2, 2.3), (1.2, 1.3))$



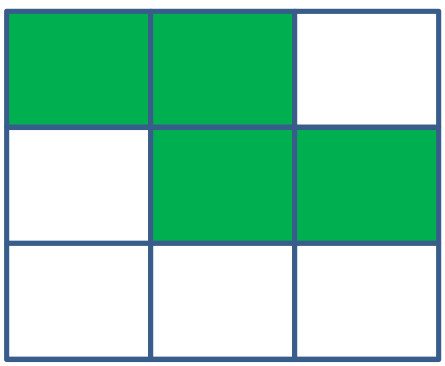
$\mathcal{R}_\lambda(3.1, 2.2, 1.2) = \{(1.1), (2.1)\}$



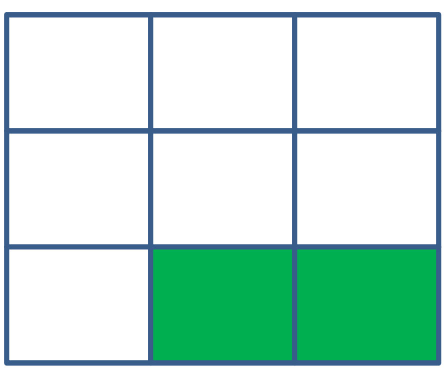
$\mathcal{R}_{\rho}(3.1, 2.2, 1.2) = \{(3.2), (3.3), (2.3), (1.3)\}$



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



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



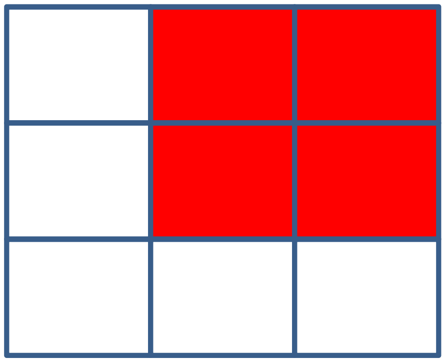
Wir haben somit

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

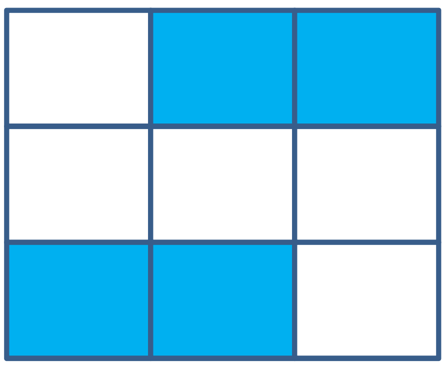
$G((3.1, 2.2, 1.2), (3.1, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.1, 2.2, 1.2) = (1.3, 2.3)$

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

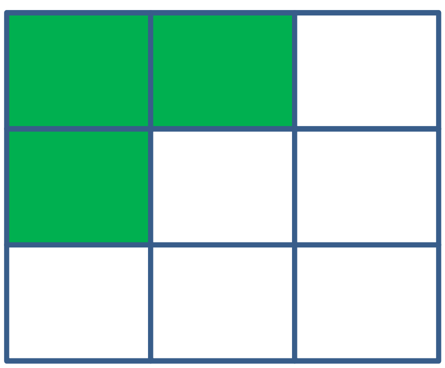
$G((3.1, 2.2, 1.2), (3.1, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.1, 2.3, 1.3) = \emptyset$.



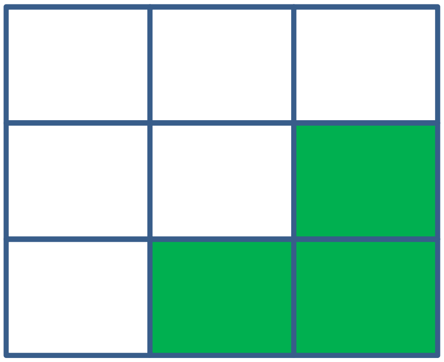
2.2.5. $G((3.1, 2.2, 1.3), (3.2, 2.2, 1.2)) = ((3.1, 3.2), (1.2, 1.3))$



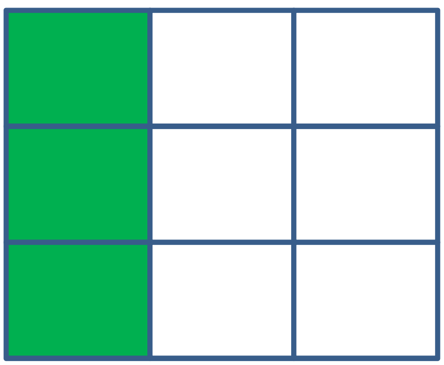
$\mathcal{R}_{\lambda}(3.1, 2.2, 1.3) = \{(1.1), (1.2), (2.1)\}$



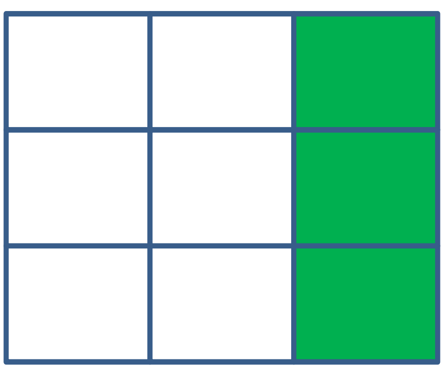
$\mathcal{R}_\rho(3.1, 2.2, 1.3) = \{(3.2), (3.3), (2.3)\}$



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



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



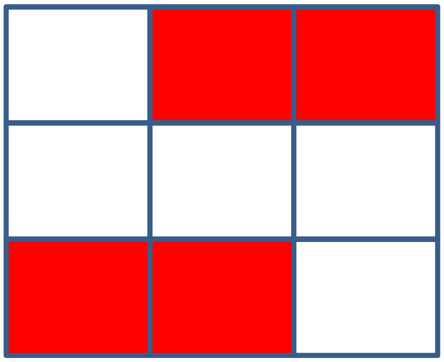
Wir haben somit

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

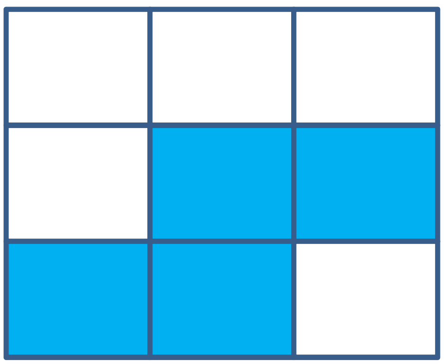
$G((3.1, 2.2, 1.3), (3.2, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.3) = (3.2)$

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

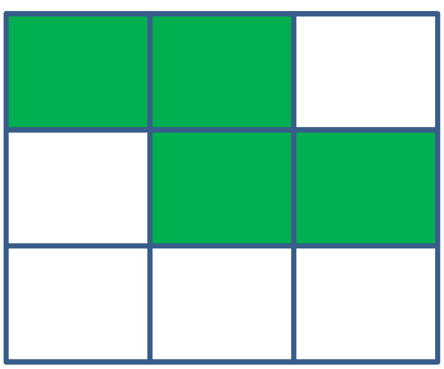
$G((3.1, 2.2, 1.3), (3.2, 2.2, 1.2)) \cap \mathcal{R}_{\rho}(3.2, 2.2, 1.2) = (1.3)$



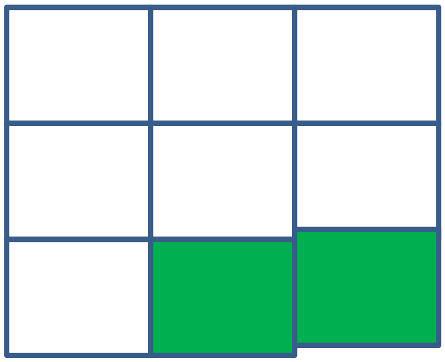
2.2.6. $G((3.1, 2.3, 1.3), (3.2, 2.2, 1.3)) = ((3.1, 3.2), (2.2, 2.3))$



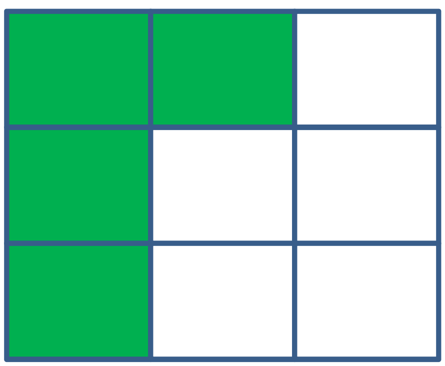
$\mathcal{R}_{\lambda}(3.1, 2.3, 1.3) = \{(1.1), (1.2), (2.2), (2.3)\}$



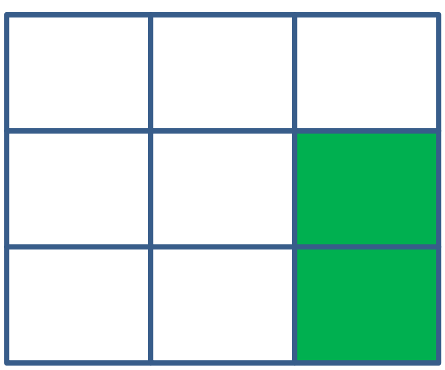
$\mathcal{R}_\rho(3.1, 2.3, 1.3) = \{(3.2), (3.3)\}$



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



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



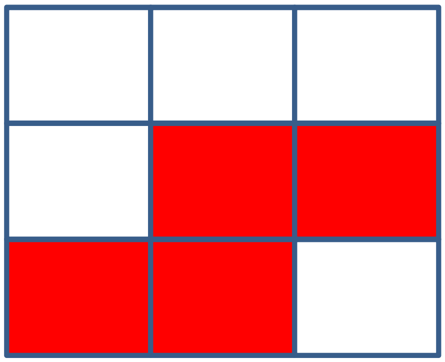
Wir haben somit

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

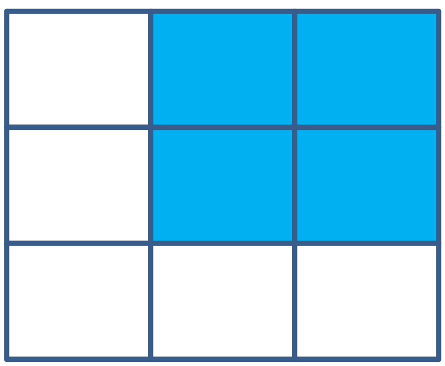
$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.3, 1.3) = (3.2)$

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

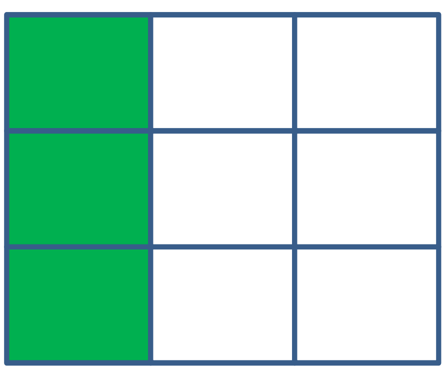
$G((3.1, 2.3, 1.3), (3.2, 2.2, 1.3)) \cap \mathcal{R}_{\rho}(3.2, 2.2, 1.3) = (2.3)$



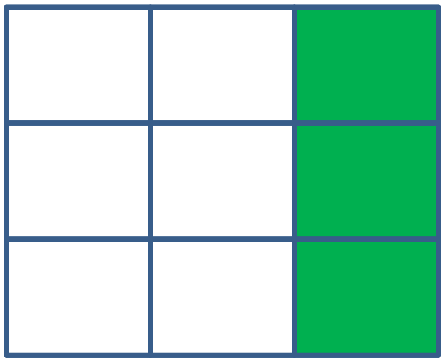
2.2.7. $G((3.2, 2.2, 1.2), (3.2, 2.3, 1.3)) = ((2.2, 2.3), (1.2, 1.3))$



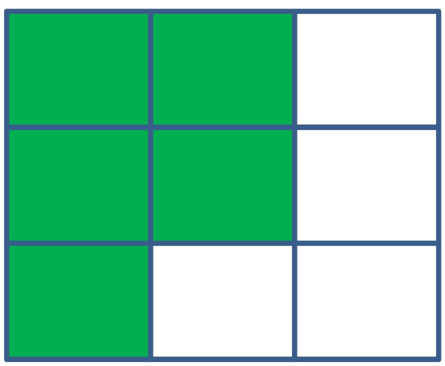
$\mathcal{R}_{\lambda}(3.2, 2.2, 1.2) = \{(1.1), (2.1), (3.1)\}$



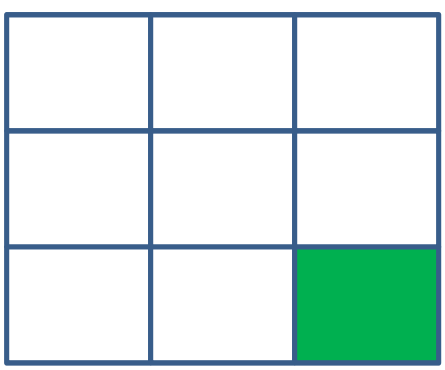
$\mathcal{R}_\rho(3.2, 2.2, 1.2) = \{(3.3), (2.3), (1.3)\}$



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



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



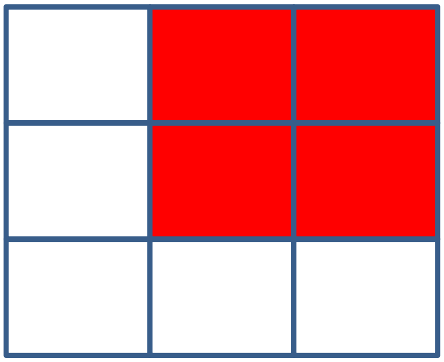
Wir haben somit

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

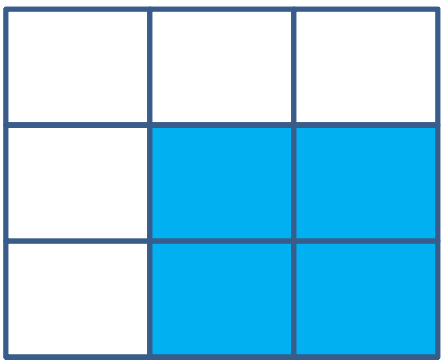
$G((3.2, 2.2, 1.2), (3.2, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.2) = (2.3, 1.3)$

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

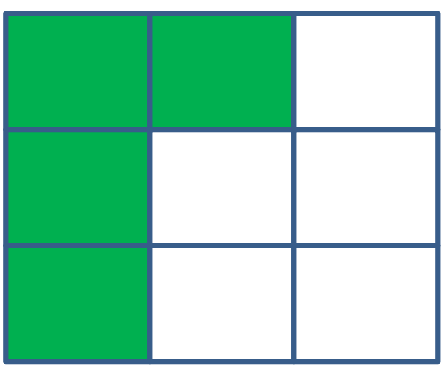
$G((3.2, 2.2, 1.2), (3.2, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.3, 1.3) = \emptyset$.



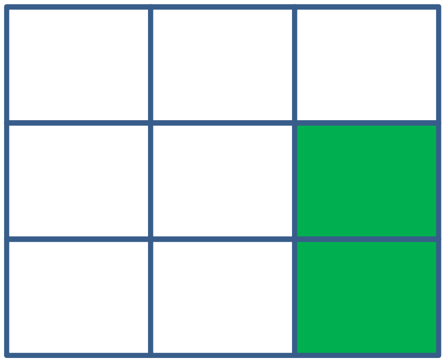
2.2.8. $G((3.2, 2.2, 1.3), (3.3, 2.3, 1.3)) = ((3.2, 3.3), (2.2, 2.3))$



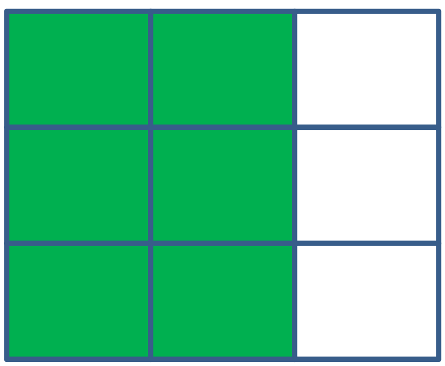
$\mathcal{R}_\lambda(3.2, 2.2, 1.3) = \{(1.1), (1.2), (2.1), (3.1)\}$



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



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



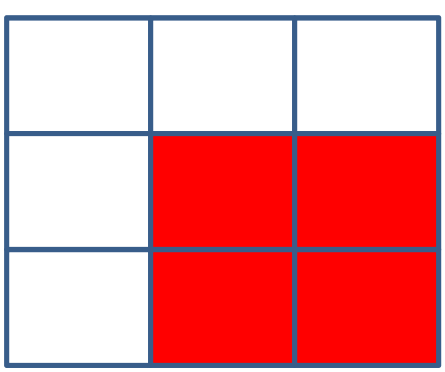
Wir haben somit

$G((3.2, 2.2, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_{\lambda}(3.2, 2.2, 1.3) = \emptyset$

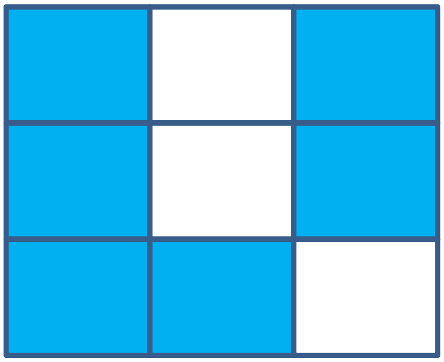
$G((3.2, 2.2, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.2, 2.2, 1.3) = (2.3, 3.3)$

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

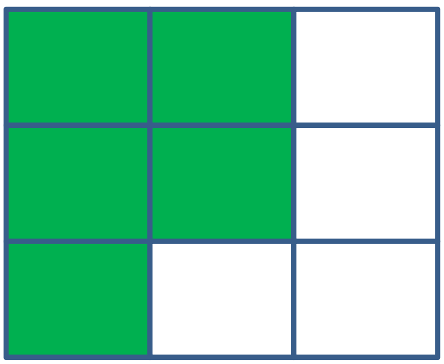
$G((3.2, 2.2, 1.3), (3.3, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.3, 2.3, 1.3) = \emptyset.$



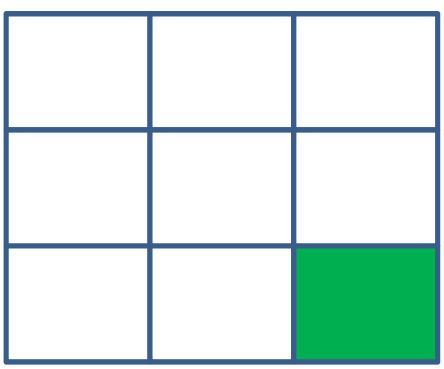
2.2.9. G((3.2, 2.3, 1.3), (3.1, 2.1, 1.1)) = ((3.1, 3.2), (2.1, 2.3), (1.1, 1.3))



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

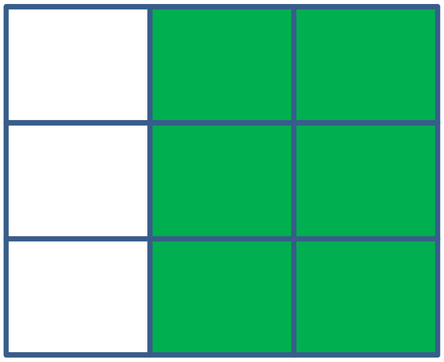


$\mathcal{R}_{\rho}$(3.2, 2.3, 1.3) = (3.3)



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

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



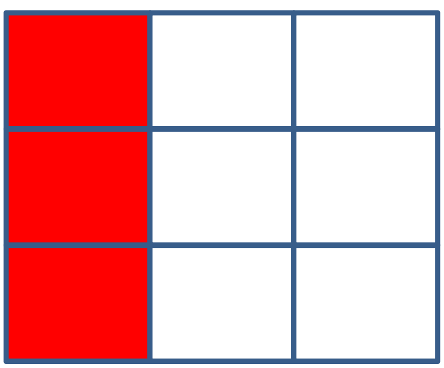
Wir haben somit

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

$G((3.2, 2.3, 1.3), (3.1, 2.1, 1.1)) \cap \mathcal{R}_\rho(3.2, 2.3, 1.3) = \emptyset$

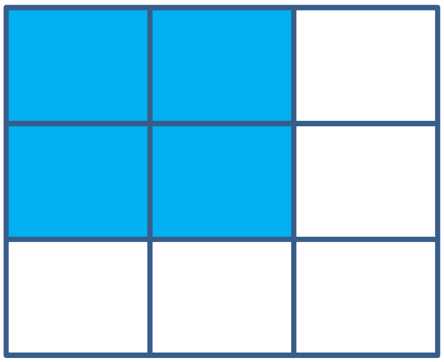
$G((3.2, 2.3, 1.3), (3.1, 2.1, 1.1)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.1) = \emptyset$

$G((3.2, 2.3, 1.3), (3.1, 2.1, 1.1)) \cap \mathcal{R}_\rho(3.2, 2.3, 1.3) = \emptyset$.



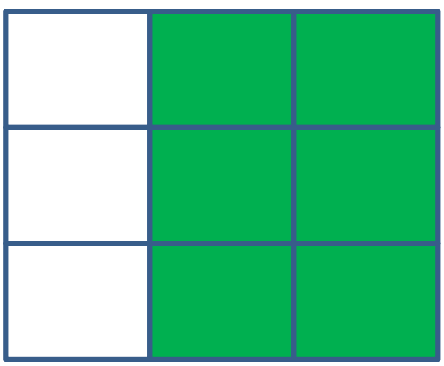
2.3. Grenzen und Ränder für die semiotische Nachbarschaft <n, n + m> mit m = 3

2.3.1. G((3.1, 2.1, 1.1), (3.1, 2.2, 1.2)) = ((2.1, 2.2), (1.1, 1.2))

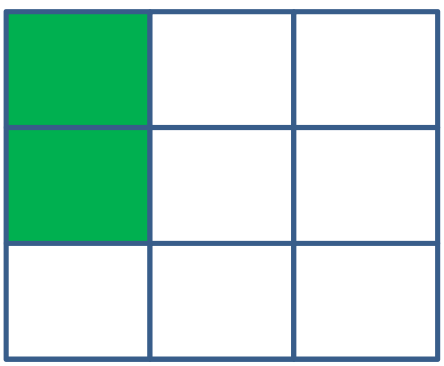


$\mathcal{R}_\lambda$(3.1, 2.1, 1.1) = Ø

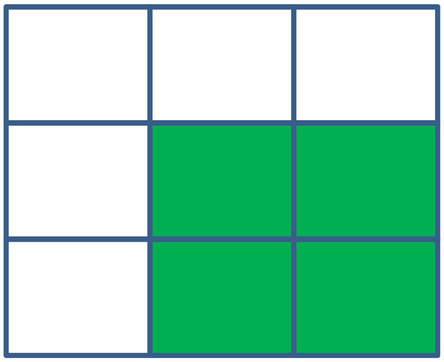
$\mathcal{R}_\rho$(3.1, 2.1, 1.1) = {(3.2), (3.3), (2.2), (2.3), (1.2), (1.3)}



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



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



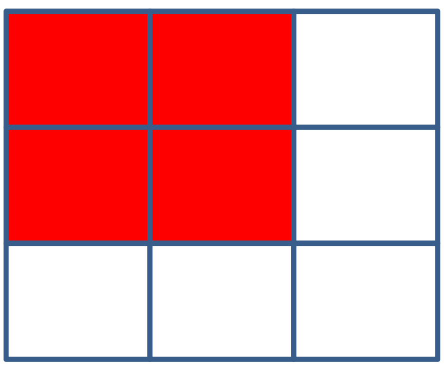
Wir haben somit

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

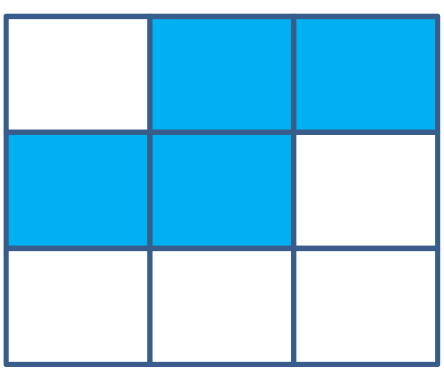
$G((3.1, 2.1, 1.1), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.1) = (1.2, 2.2)$

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

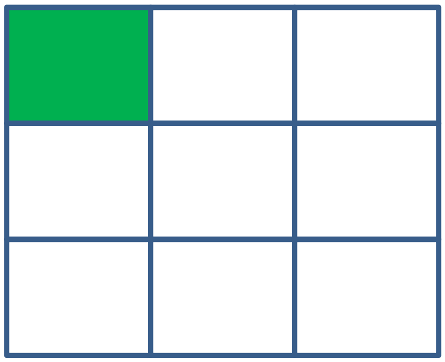
$G((3.1, 2.1, 1.1), (3.1, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.2) = \emptyset$.



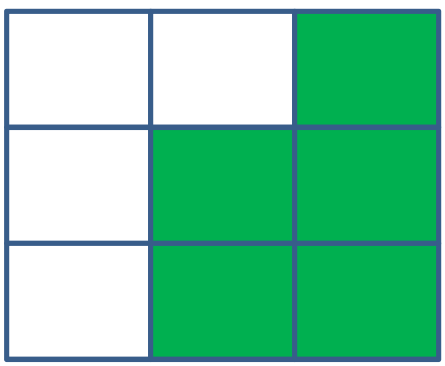
2.3.2. $G((3.1, 2.1, 1.2), (3.1, 2.2, 1.3)) = ((2.1, 2.2), (1.2, 1.3))$



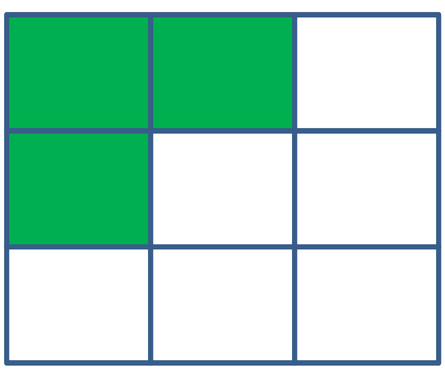
$\mathcal{R}_\lambda(3.1, 2.1, 1.2) = (1.1)$



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



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



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

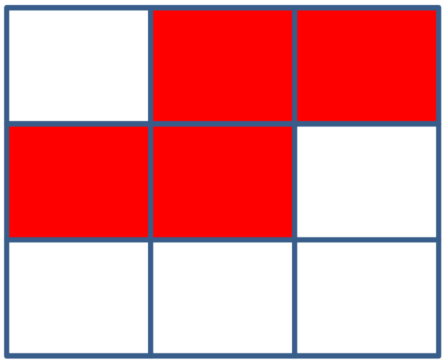
Wir haben somit

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

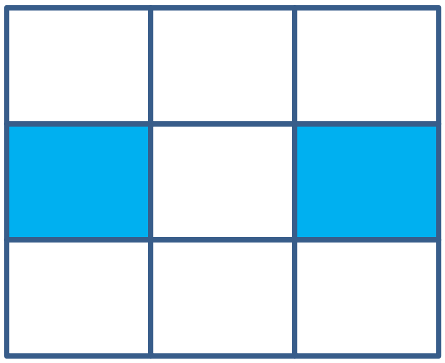
$G((3.1, 2.1, 1.2), (3.1, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.2) = (1.3, 2.2)$

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

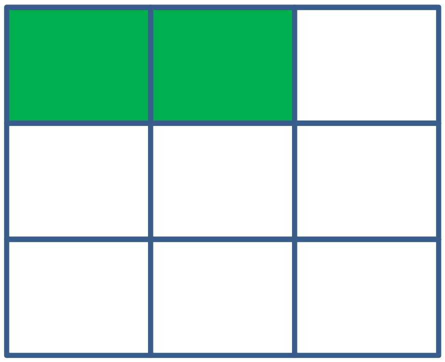
G((3.1, 2.1, 1.2), (3.1, 2.2, 1.3)) ∩ $\mathcal{R}_{\rho}$(3.1, 2.2, 1.3) = Ø.



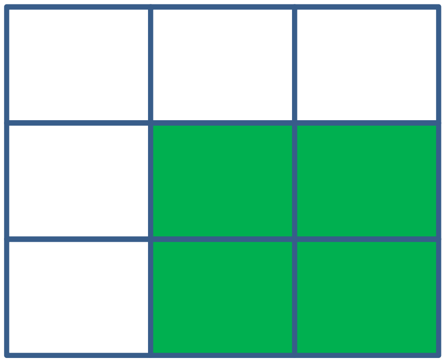
2.3.2. G((3.1, 2.1, 1.3), (3.1, 2.3, 1.3)) = (2.1, 2.3)



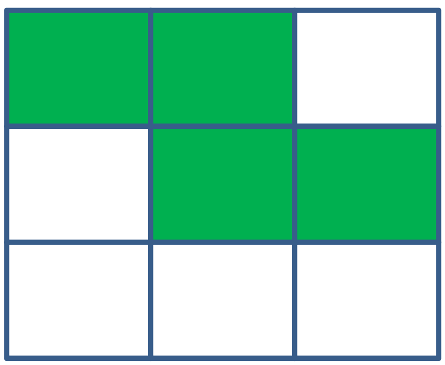
$\mathcal{R}_{\lambda}$(3.1, 2.1, 1.3) = {(1.1), (1.2)}



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



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



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

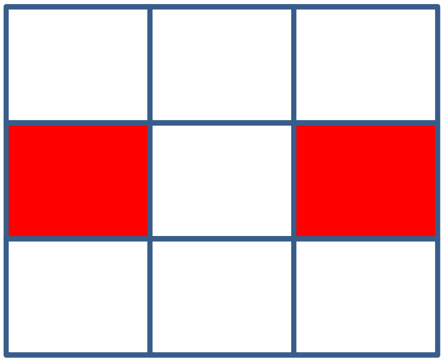
Wir haben somit

$G((3.1, 2.1, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.3) = \emptyset$

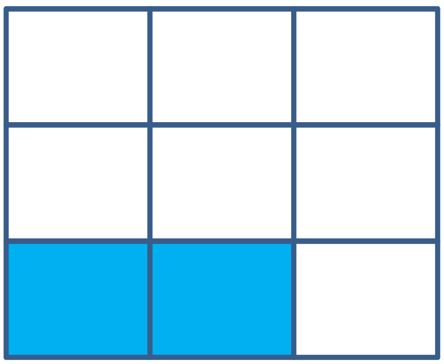
$G((3.1, 2.1, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.3) = (2.3)$

$G((3.1, 2.1, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.1, 2.3, 1.3) = (2.1)$

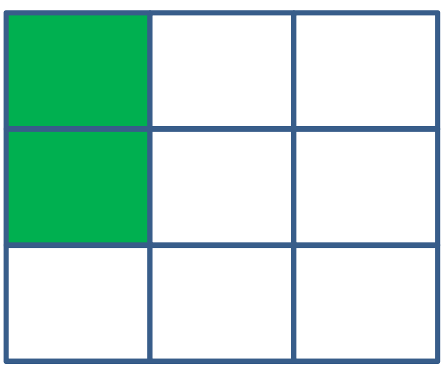
$G((3.1, 2.1, 1.3), (3.1, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.1, 2.3, 1.3) = \emptyset$.



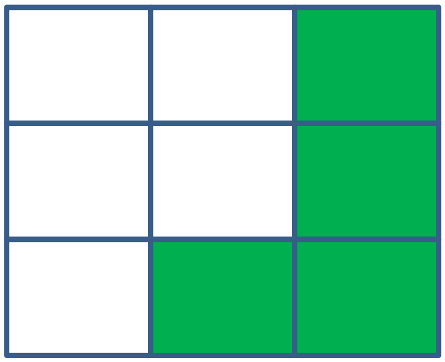
2.3.3. G((3.1, 2.2, 1.2), (3.2, 2.2, 1.2)) = (3.1, 3.2)



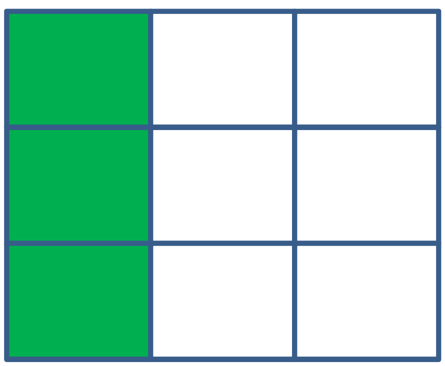
$\mathcal{R}_{\lambda}$(3.1, 2.2, 1.2) = {(1.1), (2.1)}



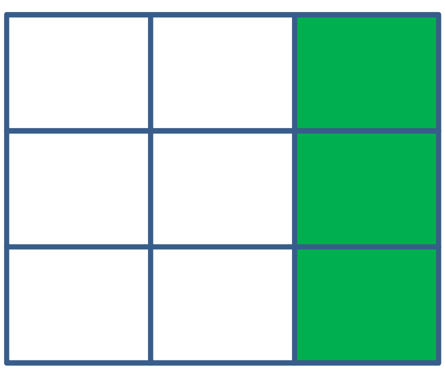
$\mathcal{R}_\rho(3.1, 2.2, 1.2) = \{(3.2), (3.3), (2.3), (1.3)\}$



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



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



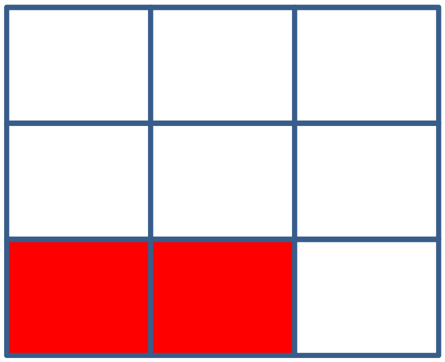
Wir haben somit

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

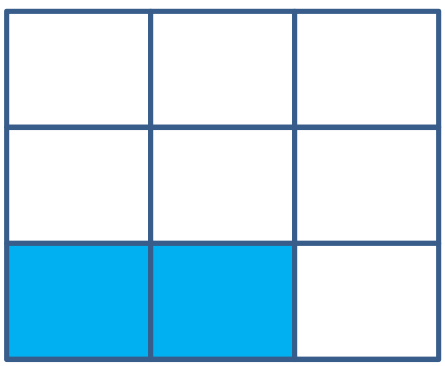
$G((3.1, 2.2, 1.2), (3.2, 2.2, 1.2)) \cap \mathcal{R}_\rho(3.1, 2.2, 1.2) = (3.2)$

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

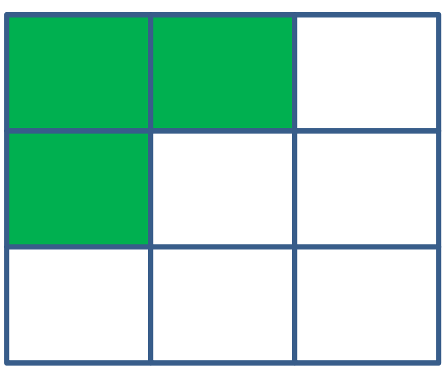
$G((3.1, 2.2, 1.2), (3.2, 2.2, 1.2)) \cap \mathcal{R}_{\rho}(3.2, 2.2, 1.2) = \emptyset$.



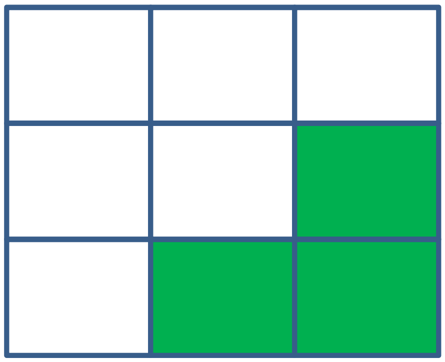
2.3.4. $G((3.1, 2.2, 1.3), (3.2, 2.2, 1.3)) = (3.1, 3.2)$



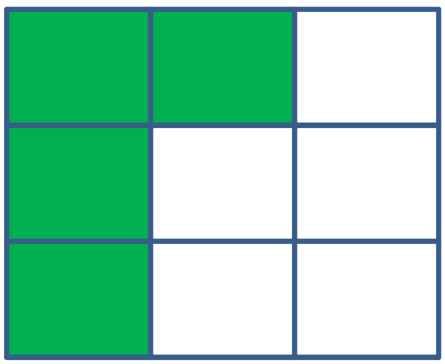
$\mathcal{R}_{\lambda}(3.1, 2.2, 1.3) = \{(1.1), (1.2), (2.1)\}$



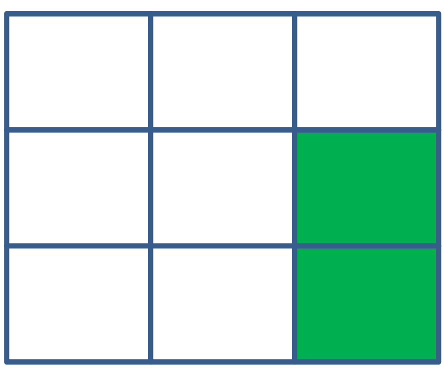
$\mathcal{R}_{\rho}(3.1, 2.2, 1.3) = \{(3.2), (3.3), (2.3)\}$



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



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



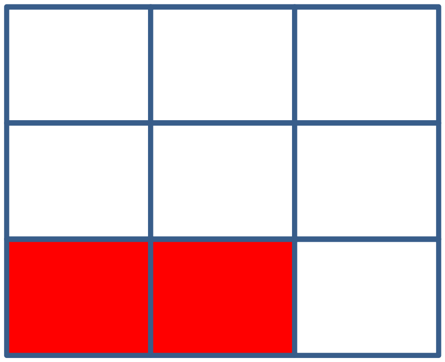
Wir haben somit

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

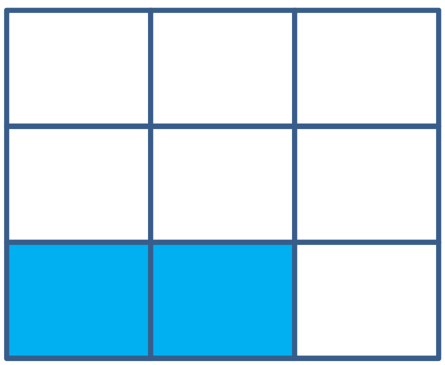
$G((3.1, 2.2, 1.3), (3.2, 2.2, 1.3)) \cap \mathcal{R}_{\rho}(3.1, 2.2, 1.3) = (3.2)$

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

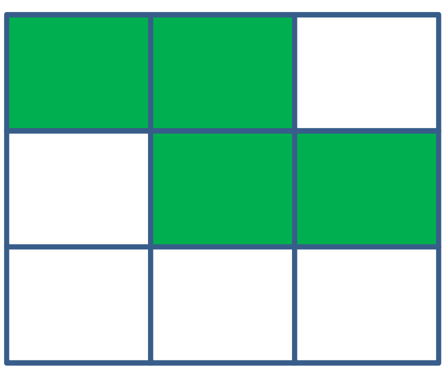
$G((3.1, 2.2, 1.3), (3.2, 2.2, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.3) = \emptyset$.



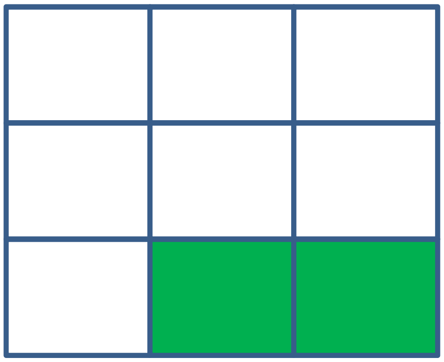
2.3.5. $G((3.1, 2.3, 1.3), (3.2, 2.3, 1.3)) = (3.1, 3.2)$



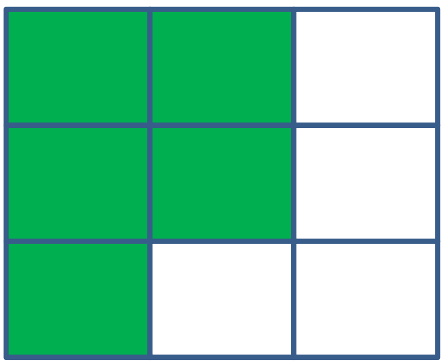
$\mathcal{R}_\lambda(3.1, 2.3, 1.3) = \{(1.1), (1.2), (2.2), (2.3)\}$



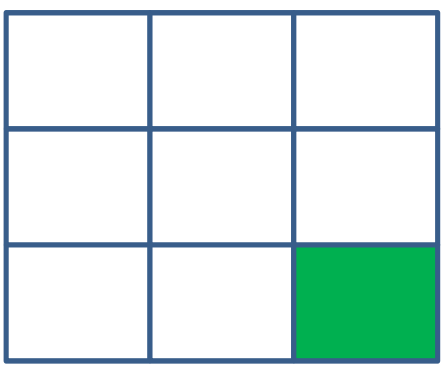
$\mathcal{R}_{\rho}(3.1, 2.3, 1.3) = \{(3.2), (3.3)\}$



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



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



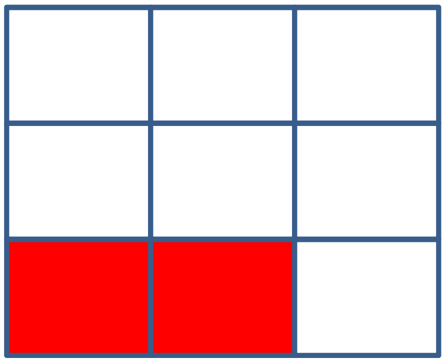
Wir haben somit

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

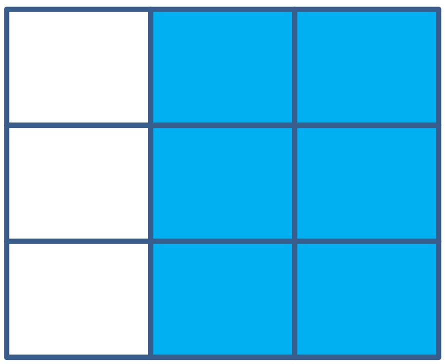
$G((3.1, 2.3, 1.3), (3.2, 2.3, 1.3)) \cap \mathcal{R}_{\rho}(3.1, 2.3, 1.3) = (3.2)$

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

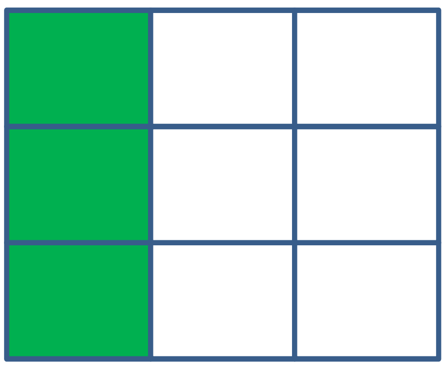
G((3.1, 2.3, 1.3), (3.2, 2.3, 1.3)) ∩ $\mathcal{R}_{\rho}$(3.2, 2.3, 1.3) = Ø.



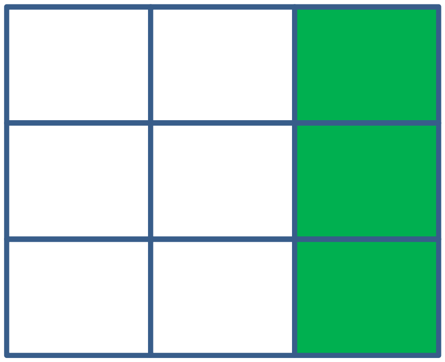
2.3.6. G((3.2, 2.2, 1.2), (3.3, 2.3, 1.3)) = ((3.2, 3.3), (2.2, 2.3), (1.2, 1.3))



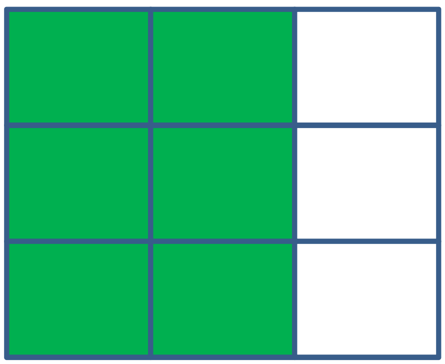
$\mathcal{R}_{\lambda}$(3.2, 2.2, 1.2) = {(1.1), (2.1), (3.1)}



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



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



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

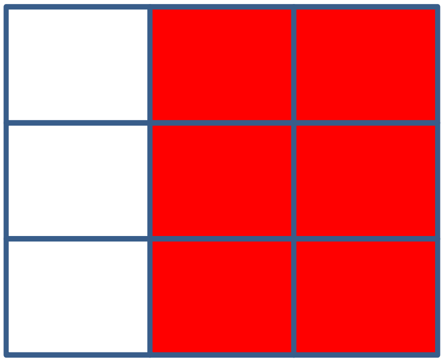
Wir haben somit

$G((3.2, 2.2, 1.2), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\lambda(3.2, 2.2, 1.2) = \emptyset$

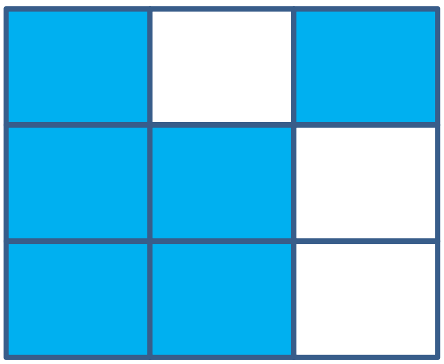
$G((3.2, 2.2, 1.2), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.2) = (1.3, 2.3, 3.3)$

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

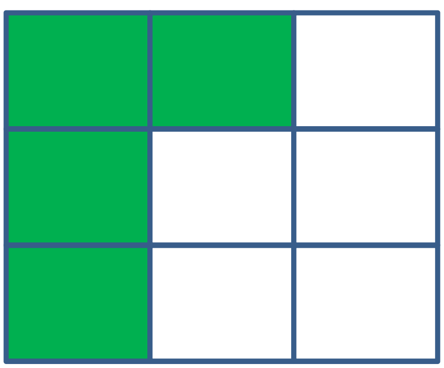
$G((3.2, 2.2, 1.2), (3.3, 2.3, 1.3)) \cap \mathcal{R}_\rho(3.3, 2.3, 1.3) = \emptyset.$



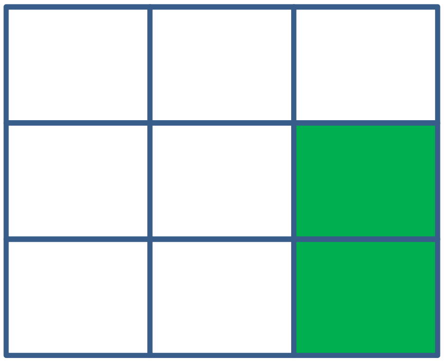
2.3.7. G((3.2, 2.2, 1.3), (3.1, 2.1, 1.1)) = ((3.1, 3.2), (2.1, 2.2), (1.1, 1.3))



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

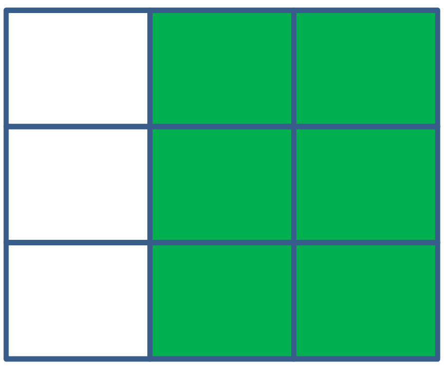


$\mathcal{R}_\rho(3.2, 2.2, 1.3) = \{(3.3), (2.3)\}$



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

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



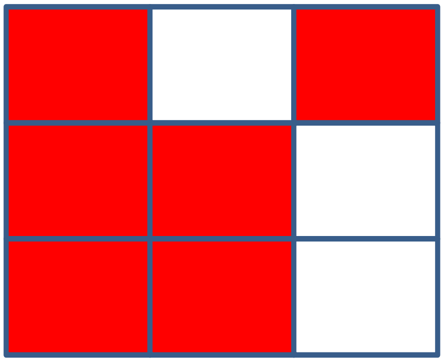
Wir haben somit

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

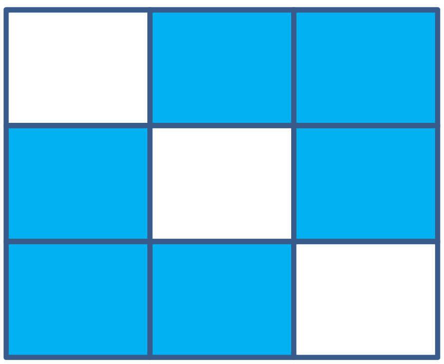
$G((3.2, 2.2, 1.3), (3.1, 2.1, 1.1)) \cap \mathcal{R}_\rho(3.2, 2.2, 1.3) = \emptyset$

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

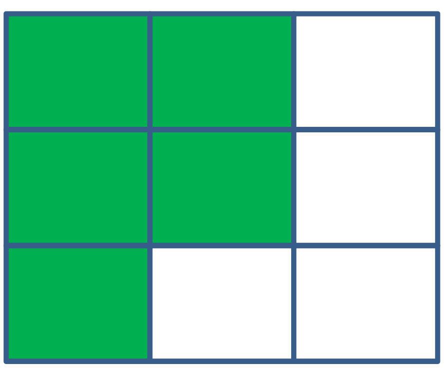
$G((3.2, 2.2, 1.3), (3.1, 2.1, 1.1)) \cap \mathcal{R}_\rho(3.1, 2.1, 1.1) = (1.3, 2.2, 3.2)$.



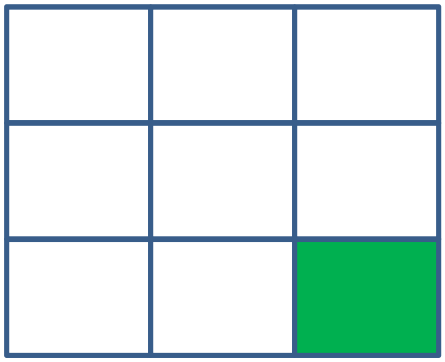
2.3.8. G((3.2, 2.3, 1.3), (3.1, 2.1, 1.2)) = ((3.1, 3.2), (2.1, 2.3), (1.2, 1.3))



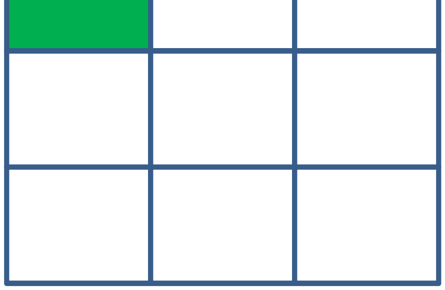
$\mathcal{R}_\lambda$(3.2, 2.3, 1.3) = {(1.1), (1.2), (2.1), (2.2), (3.1)}



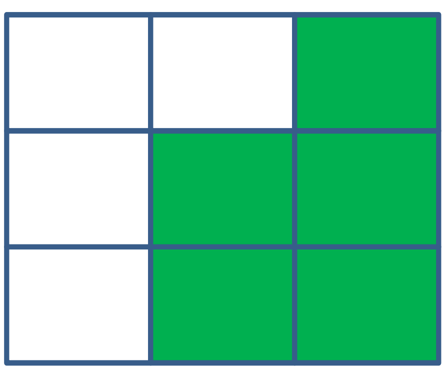
$\mathcal{R}_\rho(3.2, 2.3, 1.3) = (3.3)$



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



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



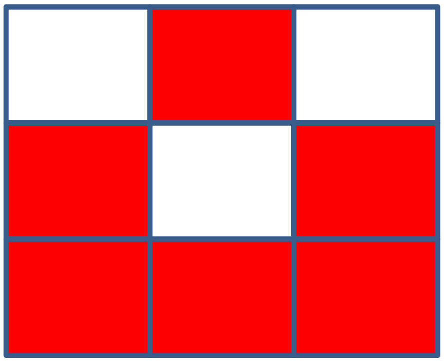
Wir haben somit

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

$G((3.2, 2.3, 1.3), (3.1, 2.1, 1.2)) \cap \mathcal{R}_\rho(3.2, 2.3, 1.3) = \emptyset$

$G((3.2, 2.3, 1.3), (3.1, 2.1, 1.2)) \cap \mathcal{R}_\lambda(3.1, 2.1, 1.2) = \emptyset$

$G((3.2, 2.3, 1.3), (3.1, 2.1, 1.2)) \cap \mathcal{R}_{\rho}(3.1, 2.1, 1.2) = (1.3, 2.3, 3.2)$.



3.1. Wir können somit den neuen Begriff der semiotischen Nachbarschaft durch

$N = \Delta_{i,j}(Zkl_i, Zkl_j)$

definieren. Die Nachbarschaft zweier Zeichen ist somit umso größer, je kleiner $\Delta_{i,j}$ ist. Wie man erkennt, führt die Erhöhung von $\Delta_{i,j}$ zu äußerst interessanten semiotischen topologischen Räumen.

3.2. Ab einer bestimmten, d.h. vorerst noch nicht bekannten, Größe von $\Delta_{i,j}$ partitionieren die Grenzränder die semiotische Nachbarschaft, vgl.

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

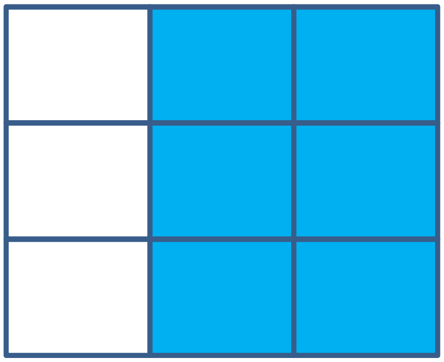
$G((3.1, 2.1, 1.1), (3.1, 2.2, 1.2)) \cap \mathcal{R}_{\rho}(3.1, 2.1, 1.1) = (1.2, 2.2)$

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

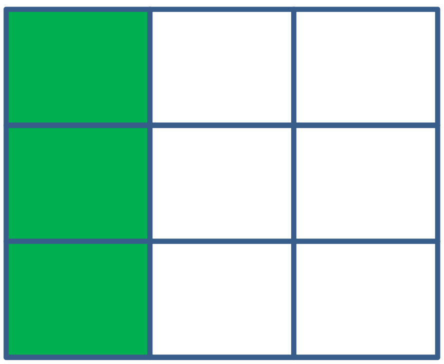
$G((3.1, 2.1, 1.1), (3.1, 2.2, 1.2)) \cap \mathcal{R}_{\rho}(3.1, 2.2, 1.2) = \emptyset$.

3.3. Unter bestimmten, ebenfalls vorerst noch nicht bekannten, Bedingungen besteht Komplementarität zwischen den topologischen Räumen semiotischer Nachbarschaften sowie linken und rechten Rändern, vgl.

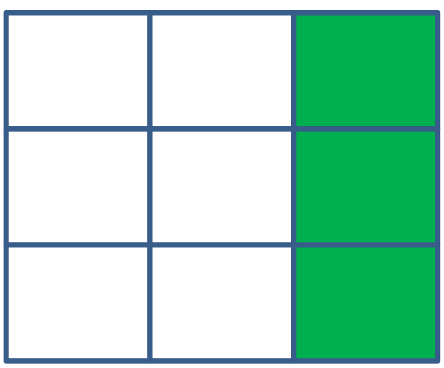
$G((3.2, 2.2, 1.2), (3.3, 2.3, 1.3)) = ((3.2, 3.3), (2.2, 2.3), (1.2, 1.3))$



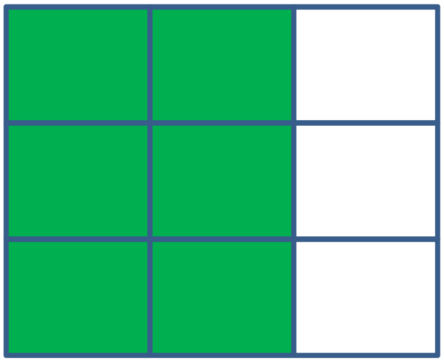
$\mathcal{R}_{\lambda}(3.2, 2.2, 1.2) = \{(1.1), (2.1), (3.1)\}$



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



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



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

3.4. Durch diese Abbildungen topologischer semiotischer Nachbarschaftsräume auf die Ränder der in Nachbarschaft stehenden Zeichen werden ferner in bestimmten Fällen reguläre Zeichenklassen bzw. Permutationen von ihnen erzeugt (vgl. Kap. 3.3. u. 2.2.9). Werden zwei Zeichenklassen erzeugt, so können diese, wie in 3.3., zueinander adjazent sein oder auch nicht. Ein Beispiel für ein Paar gleitgespiegelter Zeichenklassen ist in 2.3.8. Ein ebenfalls noch unbewiesener Satz der topoplogischen Semiotik lautet:

SATZ. Je größer $\Delta_{i,j}$ ist, desto größer ist die Wahrscheinklichkeit, daß die Abbildung semiotischer Nachbarschaftsräume auf die Ränder der in einer Nachbarschaftsrelation stehenden Zeichenklassen Zeichenklassen bzw. Permutationen von Zeichenklassen generiert.

Insgesamt stellt die Untersuchung von semiotischer Nachbarschaft, Grenzen, Rändern und Grenzrändern ein Paradebeispiel für qualitative Differenzierung von Quantitäten dar. In diesem Beitrag und seinem Vorgänger (Toth 2013c) wurden die Qualitäten innerhalb der semiotischen topologischen Räume daher mit Farben markiert.

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

Toth, Alfred, Zur Topologie semiotischer Grenzen und Ränder. In: Electronic Journal for Mathematical Semiotics, 2013c

3.12.2013