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Semiotische Umgebung und Nachbarschaft

1. In Toth (2013a) wurde die semiotische Umgebung als die Vereinigung der linken bzw. involvativen und der rechten bzw. suppletiven Ränder von Zeichenrelationen definiert. In Toth (2013b) wurde die semiotische Nachbarschaft als Paar von Zeichenklassen oder Realitätsthematiken definiert. Im folgenden soll das Verhältnis von Umgebung und Nachbarschaft in Bezug auf die weiters in Toth (2013a, b) definierten Begriffe Rand, Grenze und Grenzrand/Randgrenze von Zeichen als Grundlage für eine spätere semiotische kategorietheoretische Topologie demonstriert werden.

2. Zunächst müssen hierzu die triadisch-trichotomischen Relationen in rein trichotomische Relation transformiert werden. Die folgenden Abbildungen sind bijektiv. Ebenfalls bijektiv ist die Abbildung trichotomischer auf kategoriale Relationen.

(3.1, 2.1, 1.1)	→	$\langle 1, 1, 1\rangle$	→	$[id_1, id_1]$
(3.1, 2.1, 1.2)	→	$\langle 1, 1, 2\rangle$	→	$[id_1, \alpha]$
(3.1, 2.1, 1.3)	→	$\langle 1, 1, 3\rangle$	→	$[id_1, \beta\alpha]$
(3.1, 2.2, 1.2)	→	$\langle 1, 2, 2\rangle$	→	$[\alpha, id_2]$
(3.1, 2.2, 1.3)	→	$\langle 1, 2, 3\rangle$	→	$[\alpha, \beta]$
(3.1, 2.3, 1.3)	→	$\langle 1, 3, 3\rangle$	→	$[\beta\alpha, id_3]$
(3.2, 2.2, 1.2)	→	$\langle 2, 2, 2\rangle$	→	$[id_2, id_2]$
(3.2, 2.2, 1.3)	→	$\langle 2, 2, 3\rangle$	→	$[id_2, \beta]$
(3.2, 2.3, 1.3)	→	$\langle 2, 3, 3\rangle$	→	$[\beta, id_3]$
(3.3, 2.3, 1.3)	→	$\langle 3, 3, 3\rangle$	→	$[id_3, id_3]$

3. Nachbarschaften von Umgebungen/Umgebungen von Nachbarschaften

3.1.

$G([id_1, id_1], [id_1, \alpha]) = (id_1, \alpha°)$

$\mathcal{R}_\lambda[id_1, id_1] = \emptyset$

$\mathcal{R}_\rho[id_1, id_1] = \{(\beta°), (id_3), (id_2), (\beta), (\alpha°), (\beta\alpha)\}$

$\mathcal{R}_\lambda[id_1, \alpha] = (id_1)$

$\mathcal{R}_\rho[id_1, \alpha] = \{(\beta°), (id_3), (id_2), (\beta), (\beta\alpha)\}$

$G([id_1, id_1], [id_1, \alpha]) \cap \mathcal{R}_\lambda[id_1, id_1] = \emptyset$

$G([id_1, id_1], [id_1, \alpha]) \cap \mathcal{R}_\rho[id_1, id_1] = (\alpha°)$

$G([id_1, id_1], [id_1, \alpha]) \cap \mathcal{R}_\lambda[id_1, \alpha] = (id_1)$

$G([id_1, id_1], [id_1, \alpha]) \cap \mathcal{R}_\rho[id_1, \alpha] = \emptyset$.

3.2.

$G([id_1, \alpha], [id_1, \beta\alpha]) = (\alpha°, \beta\alpha)$

$\mathcal{R}_\lambda[id_1, \alpha] = (id_1)$

$\mathcal{R}_\rho[id_1, \alpha] = \{(\beta°), (id_3), (id_2), (\beta), (\beta\alpha)\}$

$\mathcal{R}_\lambda[id_1, \beta\alpha] = \{(id_1), (\alpha°)\}$

$\mathcal{R}_\rho[id_1, \beta\alpha] = \{(\beta°), (id_3), (id_2), (\beta)\}$

$G([id_1, \alpha], [id_1, \beta\alpha]) \cap \mathcal{R}_\lambda[id_1, \alpha] = \emptyset$

$G([id_1, \alpha], [id_1, \beta\alpha]) \cap \mathcal{R}_\rho[id_1, \alpha] = (\beta\alpha)$

$G([id_1, \alpha], [id_1, \beta\alpha]) \cap \mathcal{R}_\lambda[id_1, \beta\alpha] = (\alpha°)$

$G([id_1, \alpha], [id_1, \beta\alpha]) \cap \mathcal{R}_\rho[id_1, \beta\alpha] = \emptyset$.

3.3.

$G([id_1, \beta\alpha], [\alpha, id_2]) = ((\alpha, id_2), (\alpha°, \beta\alpha))$

$\mathcal{R}_\lambda[id_1, \beta\alpha] = \{(id_1), (\alpha°)\}$

$\mathcal{R}_\rho[id_1, \beta\alpha] = \{(\beta°), (id_3), (id_2), (\beta)\}$

$\mathcal{R}_\lambda[\alpha, id_2] = \{(id_1), (\alpha)\}$

$\mathcal{R}_\rho[\alpha, id_2] = \{(\beta°), (id_3), (\beta), (\beta\alpha)\}$

$G([id_1, \beta\alpha], [\alpha, id_2]) \cap \mathcal{R}_\lambda[id_1, \beta\alpha] = (\alpha°)$

$G([id_1, \beta\alpha], [\alpha, id_2]) \cap \mathcal{R}_\rho[id_1, \beta\alpha] = (id_2)$

$G([id_1, \beta\alpha], [\alpha, id_2]) \cap \mathcal{R}_\lambda[\alpha, id_2] = (\alpha)$

$G([id_1, \beta\alpha] [\alpha, id_2]) \cap \mathcal{R}_\rho[\alpha, id_2] = (\beta\alpha)$.

3.4.

$G([\alpha, id_2], [\alpha, \beta]) = (id_2, (\alpha°, \beta\alpha))$

$\mathcal{R}_\lambda[\alpha, id_2] = \{(id_1), (\alpha)\}$

$\mathcal{R}_\rho[\alpha, id_2] = \{(\beta°), (id_3), (\beta), (\beta\alpha)\}$

$\mathcal{R}_\lambda[\alpha, \beta] = \{(id_1), (\alpha°), (\alpha)\}$

$\mathcal{R}_\rho[\alpha, \beta] = \{(\beta°), (id_3), (\beta)\}$

$G([\alpha, id_2], [\alpha, \beta]) \cap \mathcal{R}_\lambda[\alpha, id_2] = \emptyset$

$G([\alpha, id_2], [\alpha, \beta]) \cap \mathcal{R}_\rho[\alpha, id_2] = (\beta\alpha)$

$G([\alpha, id_2], [\alpha, \beta]) \cap \mathcal{R}_\lambda[\alpha, \beta]= (\alpha°)$

$G(([\alpha, id_2]), [\alpha, \beta]) \cap \mathcal{R}_\rho[\alpha, \beta] = \emptyset$.

3.5.

$G([\alpha, \beta], [\beta\alpha, id_3]) = ((id_2, \beta), \beta\alpha)$

$\mathcal{R}_\lambda[\alpha, \beta] = \{(\mathrm{id}_1), (\alpha°), (\alpha)\}$

$\mathcal{R}_\rho[\alpha, \beta] = \{(\beta°), (\mathrm{id}_3), (\beta)\}$

$\mathcal{R}_\lambda[\beta\alpha, \mathrm{id}_3] = \{(\mathrm{id}_1), (\alpha°), (\mathrm{id}_2), (\beta)\}$

$\mathcal{R}_\rho[\beta\alpha, \mathrm{id}_3] = \{(\beta°), (\mathrm{id}_3)\}$

$G([\alpha, \beta], [\beta\alpha, \mathrm{id}_3]) \cap \mathcal{R}_\lambda[\alpha, \beta] = \emptyset$

$G([\alpha, \beta], [\beta\alpha, \mathrm{id}_3]) \cap \mathcal{R}_\rho[\alpha, \beta] = (\beta)$

$G([\alpha, \beta], [\beta\alpha, \mathrm{id}_3]) \cap \mathcal{R}_\lambda[\beta\alpha, \mathrm{id}_3] = (\mathrm{id}_2, \beta)$

$G([\alpha, \beta], [\beta\alpha, \mathrm{id}_3]) \cap \mathcal{R}_\rho[\beta\alpha, \mathrm{id}_3] = \emptyset$.

3.6.

$G([\beta\alpha, \mathrm{id}_3], [\mathrm{id}_2, \mathrm{id}_2]) = ((3.1, \beta°), (\mathrm{id}_2, \beta), (\alpha°, \beta\alpha))$

$\mathcal{R}_\lambda[\beta\alpha, \mathrm{id}_3] = \{(\mathrm{id}_1), (\alpha°), (\mathrm{id}_2), (\beta)\}$

$\mathcal{R}_\rho[\beta\alpha, \mathrm{id}_3] = \{(\beta°), (\mathrm{id}_3)\}$

$\mathcal{R}_\lambda[\mathrm{id}_2, \mathrm{id}_2] = \{(\mathrm{id}_1), (\alpha), (3.1)\}$

$\mathcal{R}_\rho[\mathrm{id}_2, \mathrm{id}_2] = \{(\mathrm{id}_3), (\beta), (\beta\alpha)\}$

$G([\beta\alpha, \mathrm{id}_3], [\mathrm{id}_2, \mathrm{id}_2]) \cap \mathcal{R}_\lambda[\beta\alpha, \mathrm{id}_3] = (\mathrm{id}_2, \beta, \alpha°)$

$G([\beta\alpha, \mathrm{id}_3], [\mathrm{id}_2, \mathrm{id}_2]) \cap \mathcal{R}_\rho[\beta\alpha, \mathrm{id}_3] = (\beta°)$

$G([\beta\alpha, \mathrm{id}_3], [\mathrm{id}_2, \mathrm{id}_2]) \cap \mathcal{R}_\lambda[\mathrm{id}_2, \mathrm{id}_2] = (3.1)$

$G([\beta\alpha, \mathrm{id}_3], [\mathrm{id}_2, \mathrm{id}_2]) \cap \mathcal{R}_\rho[\mathrm{id}_2, \mathrm{id}_2] = (\beta, \beta\alpha)$.

3.7.

$G([\mathrm{id}_2, \mathrm{id}_2], [\mathrm{id}_2, \beta] = (\alpha°, \beta\alpha)$

$\mathcal{R}_\lambda[\mathrm{id}_2, \mathrm{id}_2] = \{(\mathrm{id}_1), (\alpha), (3.1)\}$

$\mathcal{R}_\rho[\mathrm{id}_2, \mathrm{id}_2] = \{(\mathrm{id}_3), (\beta), (\beta\alpha)\}$

$\mathcal{R}_\lambda[\mathrm{id}_2, \beta] = \{(\mathrm{id}_1), (\alpha°), (\alpha), (3.1)\}$

$\mathcal{R}_\rho[\mathrm{id}_2, \beta] = \{(\mathrm{id}_3), (\beta)\}$

$G([\mathrm{id}_2, \mathrm{id}_2], [\mathrm{id}_2, \beta]) \cap \mathcal{R}_\lambda[\mathrm{id}_2, \mathrm{id}_2] = \emptyset$

$G([\mathrm{id}_2, \mathrm{id}_2], [\mathrm{id}_2, \beta]) \cap \mathcal{R}_\rho[\mathrm{id}_2, \mathrm{id}_2] = (\beta\alpha)$

$G([\mathrm{id}_2, \mathrm{id}_2], [\mathrm{id}_2, \beta]) \cap \mathcal{R}_\lambda[\mathrm{id}_2, \beta]= (\alpha°)$

$G([\mathrm{id}_2, \mathrm{id}_2], [\mathrm{id}_2, \beta]) \cap \mathcal{R}_\rho[\mathrm{id}_2, \beta]= \emptyset$.

3.8.

$G([\mathrm{id}_2, \beta], [\beta, \mathrm{id}_3]) = (\mathrm{id}_2, \beta)$

$\mathcal{R}_\lambda[\mathrm{id}_2, \beta] = \{(\mathrm{id}_1), (\alpha°), (\alpha), (3.1)\}$

$\mathcal{R}_\rho[\mathrm{id}_2, \beta] = \{(\mathrm{id}_3), (\beta)\}$

$\mathcal{R}_\lambda[\beta, \mathrm{id}_3] = \{(\mathrm{id}_1), (\alpha°), (\alpha), (\mathrm{id}_2), (3.1)\}$

$\mathcal{R}_\rho[\beta, \mathrm{id}_3] = (\mathrm{id}_3)$

$G([\mathrm{id}_2, \beta], [\beta, \mathrm{id}_3]) \cap \mathcal{R}_\lambda[\mathrm{id}_2, \beta] = \emptyset$

$G([\mathrm{id}_2, \beta], [\beta, \mathrm{id}_3]) \cap \mathcal{R}_\rho[\mathrm{id}_2, \beta] = (\beta)$

$G([\mathrm{id}_2, \beta], [\beta, \mathrm{id}_3]) \cap \mathcal{R}_\lambda[\beta, \mathrm{id}_3] = (\mathrm{id}_2)$

$G([\mathrm{id}_2, \beta], [\beta, \mathrm{id}_3]) \cap \mathcal{R}_\rho[\beta, \mathrm{id}_3] = \emptyset$.

3.9.

$G([\beta, \mathrm{id}_3], [\mathrm{id}_3, \mathrm{id}_3]) = (\beta°, \mathrm{id}_3)$

$\mathcal{R}_\lambda[\beta, \mathrm{id}_3] = \{(\mathrm{id}_1), (\alpha°), (\alpha), (\mathrm{id}_2), (3.1)\}$

$\mathcal{R}_\rho[\beta, \mathrm{id}_3] = (\mathrm{id}_3)$

$\mathcal{R}_\lambda[\mathrm{id}_3, \mathrm{id}_3] = \{(\mathrm{id}_1), (\alpha°), (\alpha), (\mathrm{id}_2), (3.1), (\beta°)\}$

$\mathcal{R}_\rho[\mathrm{id}_3, \mathrm{id}_3] = \emptyset$

$G([\beta, id_3], [id_3, id_3]) \cap \mathcal{R}_\lambda[\beta, id_3] = \varnothing$

$G([\beta, id_3], [id_3, id_3]) \cap \mathcal{R}_\rho[\beta, id_3] = (id_3)$

$G([\beta, id_3], [id_3, id_3]) \cap \mathcal{R}_\lambda[id_3, id_3] = (\beta°)$

$G([\beta, id_3], [id_3, id_3]) \cap \mathcal{R}_\rho[id_3, id_3] = \varnothing$.

Literatur

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

Toth, Alfred, Zur Topologie semiotischer Grenzen und Ränder I-II. In: Electronic Journal for Mathematical Semiotics, 2013b

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