

Strukturdiagramme eigen- und kategorienrealer Relationen

1. Man kann die von Bense (1975, S. 37) eingeführte semiotische Matrix in eine Abbildungsmatrix transformieren und diese in der Form von kategorialen Übergängen (vgl. Toth 1997, S. 21 ff.) notieren:

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

↓

1. → .1	1. → .2	1. → .3
2. → .1	2. → .2	2. → .3
3. → .1	3. → .2	3. → .3

↓

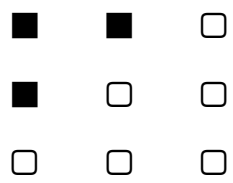
id_1	α	$\beta\alpha$
α°	id_2	β
$\alpha^\circ\beta^\circ$	β°	id_3

2. Damit sind wir soweit, daß wir die in Toth (2026) kategorial bestimmten eigen- und kategorienrealen Relationen auf die obige kategoriale Matrix abbilden¹ und die Distribution der Morphismen in der Form von Strukturdiagrammen darstellen können.

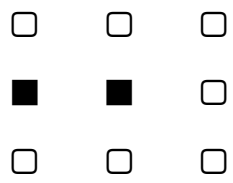
(1, 1, 1)	[id_1, id_1, id_1]		
	■	□	□
	□	□	□
	□	□	□

¹ Wir behalten die originale 3×3-Matrix bei und verzichten also auf die Abbildung von Multisets.

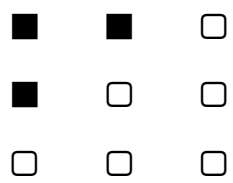
(1, 1, 2) $[\alpha^\circ, id_1, \alpha]$



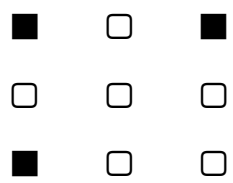
(1, 2, 1) $[\alpha^\circ, id_2, \alpha^\circ]$



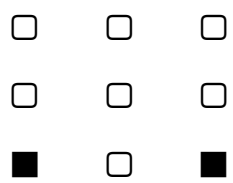
(2, 1, 1) $[\alpha, id_1, \alpha^\circ]$



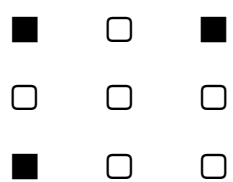
(1, 1, 3) $[\alpha^\circ\beta^\circ, id_1, \beta\alpha]$



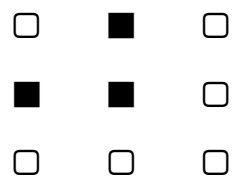
(1, 3, 1) $[\alpha^\circ\beta^\circ, id_3, \alpha^\circ\beta^\circ]$



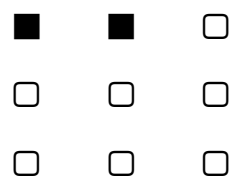
(3, 1, 1) $[\beta\alpha, id_1, \alpha^\circ\beta^\circ]$



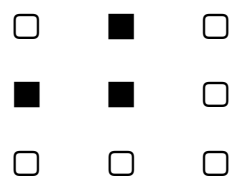
(1, 2, 2) $[\alpha^\circ, \text{id}_2, \alpha]$



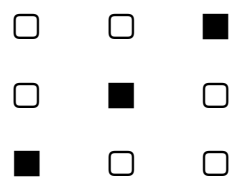
(2, 1, 2) $[\alpha, \text{id}_1, \alpha]$



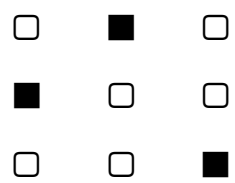
(2, 2, 1) $[\alpha, \text{id}_2, \alpha^\circ]$



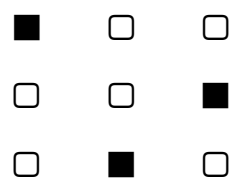
(1, 2, 3) $[\beta\alpha, \text{id}_2, \alpha^\circ\beta^\circ]$



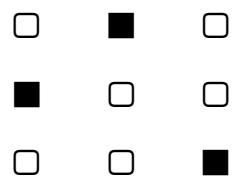
(1, 3, 2) $[\alpha, \text{id}_3, \alpha^\circ]$



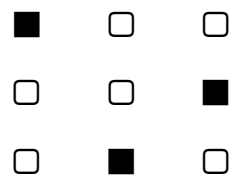
(2, 1, 3) $[\beta, \text{id}_1, \beta^\circ]$



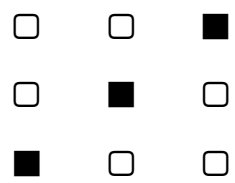
(2, 3, 1) $[\alpha^\circ, \text{id}_3, \alpha]$



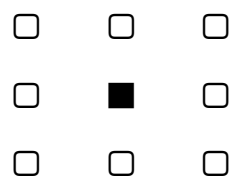
(3, 1, 2) $[\beta^\circ, \text{id}_1, \beta]$



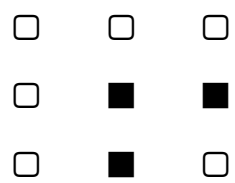
(3, 2, 1) $[\alpha^\circ\beta^\circ, \text{id}_2, \beta\alpha]$



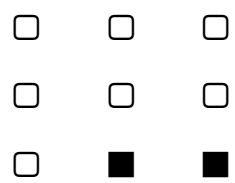
(2, 2, 2) $[\text{id}_2, \text{id}_2, \text{id}_2]$



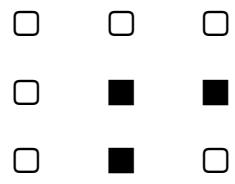
(2, 2, 3) $[\beta^\circ, \text{id}_2, \beta]$



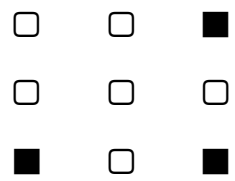
(2, 3, 2) $[\beta^\circ, \text{id}_3, \beta^\circ]$



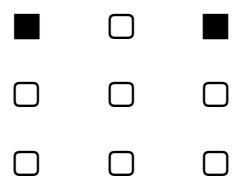
(3, 2, 2) $[\beta, \text{id}_2, \beta^\circ]$



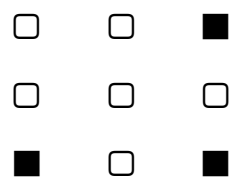
(1, 3, 3) $[\alpha^\circ\beta^\circ, \text{id}_3, \beta\alpha]$



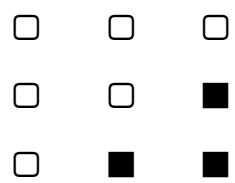
(3, 1, 3) $[\beta\alpha, \text{id}_1, \beta\alpha]$



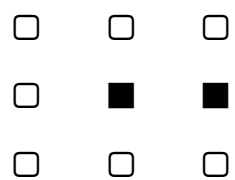
(3, 3, 1) $[\beta\alpha, \text{id}_3, \alpha^\circ\beta^\circ]$



(2, 3, 3) $[\beta^\circ, \text{id}_3, \beta]$



(3, 2, 3) $[\beta, \text{id}_2, \beta]$



(3, 3, 2) $[\beta, id_3, \beta^\circ]$

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

(3, 3, 3) $[id_3, id_3, id_3]$

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Die Abbildung der folgenden kategorialen Tripelrelationen auf Strukturdiagramme ist nicht-bijektiv:

$[\alpha^\circ, id_1, \alpha], [\alpha, id_1, \alpha^\circ]$

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

$[\alpha^\circ\beta^\circ, id_1, \beta\alpha], [\beta\alpha, id_1, \alpha^\circ\beta^\circ]$

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

$[\alpha^\circ, id_2, \alpha], [\alpha, id_2, \alpha^\circ]$

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

$[\beta\alpha, id_2, \alpha^\circ\beta^\circ], [\alpha^\circ\beta^\circ, id_2, \beta\alpha]$

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

$[\alpha^\circ, \text{id}_3, \alpha], [\beta^\circ, \text{id}_1, \beta]$

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

$[\beta^\circ, \text{id}_2, \beta], [\beta, \text{id}_2, \beta^\circ]$

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

$[\alpha^\circ\beta^\circ, \text{id}_3, \beta\alpha], [\beta\alpha, \text{id}_3, \alpha^\circ\beta^\circ]$

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

$[\beta^\circ, \text{id}_3, \beta], [\beta, \text{id}_3, \beta^\circ]$

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Literatur

Bense, Max, Semiotische Prozesse und Systeme. Baden-Baden 1975

Toth, Alfred, Entwurf einer semiotisch-relationalen Grammatik. Tübingen 1997

Toth, Alfred, Kategoriale Abbildungen eigenrealer auf kategorienreale Relationen. In: Electronic Journal for Mathematical Semiotics, 2026

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