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Elemente einer topologischen Systemtheorie für regionale Semiotiken

1. Unter einer regionalen Semiotik verstehen wir bekanntlich (vgl. z.B. Toth 2011a, b) eine Semiotik, deren Objektbezüge mit Hilfe der sphärischen Topologie darstellbar sind. Darüber hinausgehend eignen sich regionale Semiotiken natürlich auch dazu, das Verhältnis von Zeichenrelationen untereinander zu bestimmen. Als topologische Region sei im folgenden die semiotischen „Dualrelation", d.h. die Relation zwischen einer Zeichenthematik und ihrer dualen Realitätsthematik, definiert. Es gelten die in Toth (2012) aufgestellten semiotisch-systemtheoretischen Korrespondengesetze

$M = (A \to I)$

$O = ((A \to I) \to A) = (M \to A)$

$I = (((A \to I) \to A)) \to I) = (O \to I) = ((M \to O) \to I)$,

wodurch sich die semiotischen Dualrelationen auf die abstrakteren systemtheoretische Relationen zurückführen lassen:

1. (I(A(I(A))).I(A) A(I(A)).I(A) I(A).I(A)) × (I(A).I(A) I(A).A(I(A)) I(A).I(A(I(A))))

2. (I(A(I(A))).I(A) A(I(A)).I(A) I(A).A(I(A))) × (A(I(A)).I(A) I(A).A(I(A)) I(A).I(A(I(A))))

3. (I(A(I(A))).I(A) A(I(A)).I(A) I(A).I(A(I(A)))) × (I(A(I(A))).I(A) I(A).A(I(A)) I(A).I(A(I(A))))

4. (I(A(I(A))).I(A) A(I(A)).A(I(A)) I(A).A(I(A))) × (A(I(A)).I(A) A(I(A)).A(I(A)) I(A).I(A(I(A))))

5. (I(A(I(A))).I(A) A(I(A)).A(I(A)) I(A).I(A(I(A)))) × (I(A(I(A))).I(A) A(I(A)).A(I(A)) I(A).I(A(I(A))))

6. (I(A(I(A))).I(A) A(I(A)).I(A(I(A))) I(A).I(A(I(A)))) × (I(A(I(A))).I(A) I(A(I(A))).A(I(A)) I(A).I(A(I(A))))

7. (I(A(I(A))).A(I(A)) A(I(A)).A(I(A)) I(A).A(I(A))) $\times$ (A(I(A)).I(A) A(I(A)).A(I(A)) A(I(A)).I(A(I(A))))

8. (I(A(I(A))).A(I(A)) A(I(A)).A(I(A)) I(A).I(A(I(A)))) $\times$ (I(A(I(A))).I(A) A(I(A)).A(I(A)) A(I(A)).I(A(I(A))))

9. (I(A(I(A))).A(I(A)) A(I(A)).I(A(I(A))) I(A).I(A(I(A)))) $\times$ (I(A(I(A))).I(A) I(A(I(A))).A(I(A)) A(I(A)).I(A(I(A))))

10. (I(A(I(A))).I(A(I(A))) A(I(A)).I(A(I(A))) I(A).I(A(I(A)))) $\times$ (I(A(I(A))).I(A) I(A(I(A))).A(I(A)) I(A(I(A))).I(A(I(A))))

2. Damit bekommen wir unter Anwendung der Gesetze für regionale Semiotiken (vgl. Toth 2011a, b) die folgende systemtheoretische semiotische Matrix

I(A)(I(A))	I(A)(A(I(A))	I(A)(I(A(I(A))))
A(I(A))(I(A))	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
I(A(I(A)))(I(A))	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

und im Anschluß daran für die einzelnen Dualsysteme:

2.1. Zkl (3.1 2.1 1.1) $\times$ Rth (1.1 1.2 1.3)

I(A)(I(A))	I(A)(A(I(A))	I(A)(I(A(I(A))))
A(I(A))(I(A))	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
I(A(I(A)))(I(A))	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

I(A)(I(A))	I(A)(A(I(A))	I(A)(I(A(I(A))))
A(I(A))(I(A))	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
I(A(I(A)))(I(A))	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

equal(zkl$\cup$rth) = (I(A)(I(A)))

disj(zkl∪rth) = ((I(A)(A(I(A))), (I(A)(I(A(I(A))))), (A(I(A))(I(A))), (I(A(I(A)))(I(A))))

2.2. Zkl (3.1 2.1 1.2) × Rth (2.1 1.2 1.3)

I(A)(I(A))	<u>I(A)(A(I(A))</u>	I(A)(I(A(I(A))))
<u>A(I(A))(I(A))</u>	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
<u>I(A(I(A)))(I(A))</u>	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

I(A)(I(A))	<u>I(A)(A(I(A))</u>	<u>I(A)(I(A(I(A))))</u>
<u>A(I(A))(I(A))</u>	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
I(A(I(A)))(I(A))	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

equal(zkl∪rth) = ((I(A)(A(I(A))), (A(I(A))(I(A))))

disj(zkl∪rth) = ((I(A)(I(A(I(A))))), (I(A(I(A)))(I(A))))

2.3. Zkl (3.1 2.1 1.3) × Rth (3.1 1.2 1.3)

I(A)(I(A))	I(A)(A(I(A))	<u>I(A)(I(A(I(A))))</u>
<u>A(I(A))(I(A))</u>	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
<u>I(A(I(A)))(I(A))</u>	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

I(A)(I(A))	<u>I(A)(A(I(A))</u>	<u>I(A)(I(A(I(A))))</u>
A(I(A))(I(A))	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
<u>I(A(I(A)))(I(A))</u>	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

equal(zkl∪rth) = ((I(A)(I(A(I(A))))), (I(A(I(A)))(I(A))))

disj(zkl∪rth) = ((I(A)(A(I(A))), (A(I(A))(I(A)))), usw.

Für die auch in regionalen Semiotiken zentrale eigenreale Zeichenklasse (vgl. Bense 1992) gilt natürlich erwartungsgemäß

Zkl (3.1 2.2 1.3) $\times$ Rth (3.1 2.2 1.3)

I(A)(I(A))	I(A)(A(I(A))	I(A)(I(A(I(A))))
A(I(A))(I(A))	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
I(A(I(A)))(I(A))	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

I(A)(I(A))	I(A)(A(I(A))	I(A)(I(A(I(A))))
A(I(A))(I(A))	A(I(A))(A(I(A)))	A(I(A))(I(A(I(A))))
I(A(I(A)))(I(A))	I(A(I(A)))(A(I(A)))	I(A(I(A)))(I(A(I(A))))

equal(zkl$\cup$rth) = ((3.1 2.2 1.3))

disj(zkl$\cup$rth) = $\varnothing$

3. Mit Hilfe der sphärisch-topologischen Klassifikation semiotischer Regionen ergeben sich die folgenden systemtheoretischen Besonderheiten bzw. Auffälligkeiten:

3.1. Komplementarität (mereotopologische Relation „overlap“):

equal(zkl$\cup$rth) = ((I(A)(I(A))))

disj(zkl$\cup$rth) = ((I(A)(A(I(A))), (I(A)(I(A(I(A))))), (A(I(A))(I(A))), (I(A(I(A)))(I(A))))

equal(zkl$\cup$rth) = ((I(A(I(A)))(I(A(I(A))))))

disj(zkl$\cup$rth) = ((I(A)(I(A(I(A))))), (A(I(A))(I(A(I(A))))), (I(A(I(A)))(I(A))), (I(A(I(A)))(A(I(A)))))

3.2. „Umarmung“ (mereotopologische Relation „embrace“):

equal(zkl$\cup$rth) = ((I(A)(A(I(A))), (A(I(A))(I(A)))) disj(zkl∪rth) = ((I(A)(I(A(I(A))))), (I(A(I(A)))(I(A))))

equal(zkl∪rth) = ((I(A)(I(A(I(A))))), (I(A(I(A)))(I(A))))

disj(zkl∪rth) = ((I(A)(A(I(A))), (A(I(A))(I(A))))

3.3. Das folgende Tripel von Regionen hat die gleichen equal-Relationen, aber verschiedene disj-Relationen:

equal(zkl∪rth) = (($\underline{\text{A(I(A))(A(I(A))))}}$))

disj(zkl∪rth) = ((I(A)(A(I(A))), ($\underline{\text{I(A)(I(A(I(A)))))}}$), ($\underline{\text{I(A(I(A)))(I(A))}}$))

equal(zkl∪rth) = (($\underline{\text{A(I(A))(A(I(A))))}}$))

disj(zkl∪rth) = ((I(A)(A(I(A))), (A(I(A))(I(A))), (A(I(A))(I(A(I(A))))), (I(A(I(A)))(A(I(A)))))

equal(zkl∪rth) = (($\underline{\text{A(I(A))(A(I(A))))}}$))

disj(zkl∪rth) = (($\underline{\text{I(A)(I(A(I(A)))))}}$), (A(I(A))(I(A(I(A))))), ($\underline{\text{I(A(I(A)))(I(A))}}$), (I(A(I(A)))(A(I(A))))) .

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