

7.1 Representations in T_0 spaces Claim 7.7: ... Then following conditions are equivalent:

$$(\forall c \in D)(a + c = 1 \rightarrow c \in \Gamma) \text{ iff} \quad (7.7.4.1)$$

$$\begin{aligned} & (\#q < t) \& (((p+q) = (\%p > \#p)) > (q < u)) ; \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad (\mathbf{4}) , \\ & \quad \quad \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad (\mathbf{12}) \\ (7.7.4.2) \end{aligned}$$

$$(\forall c \in D)(h(a) \cup h(c) = X(D) \rightarrow \Gamma \in h(c)) \text{ iff} \quad (7.7.3.1)$$

$$\begin{aligned} & (\#q < t) \& (((r \& p) + (r \& q)) = (v \& t)) > (u < (r \& q)) ; \\ & \quad \quad \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad (\mathbf{8}) , \\ & \quad \quad \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad (\mathbf{8}) \quad (7.7.3.2) \end{aligned}$$

$$(\forall c \in D)(-h(a) \subseteq h(c) \rightarrow \Gamma \in h(c)) \text{ iff} \quad (7.7.2.1)$$

$$\begin{aligned} & (\#q < t) \& (\sim((r \& q) < (\sim r \& p))) > (u < (r \& q)) ; \\ & \quad \quad \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad \mathbf{FFNN} \quad (\mathbf{8}) , \\ & \quad \quad \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad (\mathbf{8}) \quad (7.7.2.2) \end{aligned}$$

$$\Gamma \in Cl(-h(a)) \quad (7.7.1.1)$$

$$\begin{aligned} & u < (s \& \sim(r \& p)) ; \\ & \quad \quad \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad \mathbf{FFFF} \quad (\mathbf{8}) , \\ & \quad \quad \quad \mathbf{TTTT} \quad \mathbf{TTTT} \quad \mathbf{FFFF} \quad \mathbf{FTFT} \quad (\mathbf{8}) \end{aligned}$$

$$\text{Eqs } 7.7.1.1 > 7.7.1.1 > 7.7.1.1 > 7.7.1.1 \quad (7.7.5.1)$$

$$\begin{aligned} & ((u < (s \& \sim(r \& p))) > \\ & ((\#q < t) \& (\sim((r \& q) < (\sim r \& p))) > (u < (r \& q)))) > \\ & (((\#q < t) \& (((r \& p) + (r \& q)) = (v \& t)) > (u < (r \& q)))) > \\ & ((\#q < t) \& (((p+q) = (\%p > \#p)) > (q < u)))) ; \\ & \quad \quad \quad \mathbf{TTCC} \quad \mathbf{TTCC} \quad \mathbf{TTCC} \quad \mathbf{TTCC} \quad (\mathbf{4}) , \\ & \quad \quad \quad \mathbf{TTTT} \quad \mathbf{TTTT} \quad \mathbf{TTTT} \quad \mathbf{TTTT} \quad (\mathbf{12}) \quad (7.7.5.2) \end{aligned}$$

For RCC-8, the spatial relations for tangential and negation of tangential share the same truth table results. A similar case is for the non-tangential relations. This means the respective relations are not opposites as expected, but rather the same. Therefore the spatial relations for RCC-8 are not confirmed and refuted.

For representations in T_0 spaces, Eqs. 7.7.2.2 and 7.7.2.3 share the same truth table results, but 7.7.2.4 and 7.7.2.1 do not. Therefore the Eqs. are not all equivalent. Eq. 7.7.5.2 is the implication chain for iff of the Eqs. which is *not* tautologous as claimed.

These results refute distributive mereotopology.