

C:/Users/torsten/GitHub/colore/ontologies/multidim_space_codi/codi.
clif

1. $\forall x \left[\left[\text{Max}(x) \leftrightarrow \left(\text{S}(x) \wedge \neg (\text{ZEX}(x)) \wedge \forall y \left[\neg (\text{PP}(x, y)) \right] \right) \right] \right]$
2. $\forall x \left[\left[\text{Min}(x) \leftrightarrow \left(\text{S}(x) \wedge \neg (\text{ZEX}(x)) \wedge \forall y \left[\neg (\text{PP}(y, x)) \right] \right) \right] \right]$
3. $\forall x \forall y \left[\left[\text{PP}(x, y) \leftrightarrow \left(\text{P}(x, y) \wedge \neg (= (x, y)) \right) \right] \right]$
4. $\forall x \forall y \left[\left[\text{P}(x, y) \leftrightarrow \left(\text{Cont}(x, y) \wedge \text{EqDim}(x, y) \right) \right] \right]$
5. $\forall x \forall y \left[\left[\text{EqDim}(x, y) \leftrightarrow \left(\text{leq}(x, y) \wedge \text{leq}(y, x) \right) \right] \right]$
6. $\forall x \forall y \left[\left[\text{leq}(x, y) \rightarrow \text{S}(x) \right] \right]$
7. $\forall x \forall y \left[\left[\text{leq}(x, y) \rightarrow \text{S}(y) \right] \right]$
8. $\forall x \left[\left[\text{ZEX}(x) \rightarrow \text{S}(x) \right] \right]$
9. $\forall x \left[\left[\text{S}(x) \rightarrow \text{leq}(x, x) \right] \right]$
10. $\forall x \forall y \forall z \left[\left[\left(\text{leq}(x, y) \wedge \text{leq}(y, z) \right) \rightarrow \text{leq}(x, z) \right] \right]$
11. $\forall x \forall y \left[\left[\left(\text{ZEX}(x) \wedge \text{ZEX}(y) \right) \rightarrow = (x, y) \right] \right]$
12. $\forall x \forall y \left[\left[\left(\text{ZEX}(x) \wedge \text{S}(y) \right) \rightarrow \text{leq}(x, y) \right] \right]$
13. $\forall x \forall y \left[\left[\text{Cont}(x, y) \rightarrow \text{leq}(x, y) \right] \right]$
14. $\exists x \left[\text{MinDim}(x) \right]$
15. $\forall x \left[\left[\text{MaxDim}(x) \leftrightarrow \left(\text{S}(x) \wedge \neg (\text{ZEX}(x)) \wedge \forall y \left[\left[\text{S}(y) \rightarrow \text{leq}(y, x) \right] \right] \right) \right] \right]$
16. $\forall x \left[\left[\text{MinDim}(x) \leftrightarrow \left(\text{S}(x) \wedge \neg (\text{ZEX}(x)) \wedge \forall y \left[\left[\left[\left(\text{S}(y) \wedge \neg (\text{ZEX}(y)) \right) \rightarrow \text{leq}(x, y) \right] \right] \right) \right] \right] \right]$

17. $\forall x \left[\left[\left(S(x) \wedge \neg (ZEX(x)) \right) \leftrightarrow \text{Cont}(x, x) \right] \right]$
18. $\forall x \forall y \left[\left[\left(\text{Cont}(x, y) \wedge \text{Cont}(y, x) \right) \rightarrow = (x, y) \right] \right]$
19. $\forall x \forall y \forall z \left[\left[\left(\text{Cont}(x, y) \wedge \text{Cont}(y, z) \right) \rightarrow \text{Cont}(x, z) \right] \right]$
20. $\forall x \forall y \left[\left[ZEX(x) \rightarrow \left(S(x) \wedge \neg (\text{Cont}(y, x)) \wedge \neg (\text{Cont}(x, y)) \right) \right] \right]$
21. $\forall x \forall y \left[\left[(ZEX(x) \wedge ZEX(y)) \rightarrow = (x, y) \right] \right]$
22. $\forall x \forall y \left[\left[\text{SC}(x, y) \leftrightarrow \left(\exists z \left[(\text{Cont}(z, x) \wedge \text{Cont}(z, y)) \right] \wedge \forall z \left[\left[(\text{Cont}(z, x) \wedge \text{Cont}(z, y)) \rightarrow (\text{leq}(z, x) \wedge \text{leq}(z, y)) \right] \right] \right) \right] \right]$
23. $\forall x \forall y \left[\left[\text{Inc}(x, y) \leftrightarrow \left(\exists z \left[\left(\text{leq}(z, x) \wedge \neg (\text{EqDim}(z, x)) \wedge \text{Cont}(z, x) \wedge P(z, y) \right) \right] \vee \exists z \left[\left(\text{leq}(z, y) \wedge \neg (\text{EqDim}(z, y)) \wedge \text{Cont}(z, y) \wedge P(z, x) \right) \right] \right) \right] \right]$
24. $\forall x \forall y \left[\left[\text{PO}(x, y) \leftrightarrow \exists z \left[(P(z, x) \wedge P(z, y)) \right] \right] \right]$
25. $\forall x \forall y \left[\left[C(x, y) \leftrightarrow \exists z \left[(\text{Cont}(z, x) \wedge \text{Cont}(z, y)) \right] \right] \right]$