C:/Users/torsten/GitHub/colore/ontologies/multidim_space_codib/codib.clif

1. $\forall x\ \forall y\ \Big[\big[\mathrm{SC}(x,y) \rightarrow \mathrm{C}(x,y)\big]\Big]$
2. $\forall x\ \forall y\ \Big[\Big[\mathrm{SC}(x,y) \rightarrow \neg\exists z\ \Big[\big(\mathrm{Cont}(z,x) \wedge \mathrm{P}(z,y)\big)\Big]\Big]\Big]$
3. $\forall x\ \forall y\ \Big[\Big[\mathrm{SC}(x,y) \rightarrow \neg\exists z\ \Big[\big(\mathrm{P}(z,x) \wedge \mathrm{Cont}(z,y)\big)\Big]\Big]\Big]$
4. $\forall x\ \forall y\ \Big[\Big[\Big[\Big(\mathrm{C}(x,y) \wedge \forall z\ \Big[\Big(\neg\big(\mathrm{Cont}(z,x)\big) \vee \neg\big(\mathrm{Cont}(z,y)\big) \vee \Big(\neg\big(\mathrm{P}(z,x)\big) \wedge \neg\big(\mathrm{P}(z,y)\big)\Big)\Big)\Big]\Big) \rightarrow \mathrm{SC}(x,y)$
5. $\forall x\ \Big[\neg\big(\mathrm{SC}(x,x)\big)\Big]$
6. $\forall x\ \forall y\ \Big[\big[\mathrm{SC}(x,y) \rightarrow \mathrm{SC}(y,x)\big]\Big]$
7. $\forall x\ \forall y\ \Big[\Big[\mathrm{SC}(x,y) \rightarrow \exists z\ \Big[\big(\mathrm{lt}(z,x) \wedge \mathrm{lt}(z,y) \wedge \mathrm{Cont}(z,x) \wedge \mathrm{Cont}(z,y)\big)\Big]\Big]\Big]$
8. $\forall x\ \forall y\ \Big[\Big[\mathrm{SC}(x,y) \leftrightarrow \Big(\exists z\ \Big[\big(\mathrm{Cont}(z,x) \wedge \mathrm{Cont}(z,y)\big)\Big] \wedge \forall z\ \Big[\Big[\big(\mathrm{Cont}(z,x) \wedge \mathrm{Cont}(z,y)\big) \rightarrow \Big(\mathrm{leq}(z,x) \wedge -$
9. $\forall x\ \forall y\ \Big[\Big[\mathrm{EqDim}(x,y) \leftrightarrow \big(\mathrm{leq}(x,y) \wedge \mathrm{leq}(y,x)\big)\Big]\Big]$
10. $\forall x\ \forall y\ \Big[\big[\mathrm{leq}(x,y) \rightarrow \mathrm{S}(x)\big]\Big]$
11. $\forall x\ \forall y\ \Big[\big[\mathrm{leq}(x,y) \rightarrow \mathrm{S}(y)\big]\Big]$
12. $\forall x\ \Big[\big[\mathrm{ZEX}(x) \rightarrow \mathrm{S}(x)\big]\Big]$
13. $\forall x\ \Big[\big[\mathrm{S}(x) \rightarrow \mathrm{leq}(x,x)\big]\Big]$
14. $\forall x\ \forall y\ \forall z\ \Big[\Big[\big(\mathrm{leq}(x,y) \wedge \mathrm{leq}(y,z)\big) \rightarrow \mathrm{leq}(x,z)\Big]\Big]$
15. $\forall x\ \forall y\ \Big[\Big[\big(\mathrm{ZEX}(x) \wedge \mathrm{ZEX}(y)\big) \rightarrow =(x,y)\Big]\Big]$

16. $\forall x\ \forall y\ \Big[\Big[\big(\mathrm{ZEX}(x) \wedge \mathrm{S}(y)\big) \rightarrow \mathrm{leq}(x, y)\Big]\Big]$

17. $\forall x\ \forall y\ \Big[\big[\mathrm{Cont}(x, y) \rightarrow \mathrm{leq}(x, y)\big]\Big]$

18. $\exists x\ \big[\mathrm{MinDim}(x)\big]$

19. $\forall x\ \Big[\Big[\mathrm{MaxDim}(x) \leftrightarrow \Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{ZEX}(x)\big) \wedge \forall y\ \big[\big[\mathrm{S}(y) \rightarrow \mathrm{leq}(y, x)\big]\big]\Big)\Big]\Big]$

20. $\forall x\ \Big[\Big[\mathrm{MinDim}(x) \leftrightarrow \Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{ZEX}(x)\big) \wedge \forall y\ \Big[\Big[\Big(\mathrm{S}(y) \wedge \neg\big(\mathrm{ZEX}(y)\big)\Big) \rightarrow \mathrm{leq}(x, y)\Big]\Big]\Big)\Big]\Big]$

21. $\forall x\ \Big[\Big[\Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{ZEX}(x)\big)\Big) \leftrightarrow \mathrm{Cont}(x, x)\Big]\Big]$

22. $\forall x\ \forall y\ \Big[\Big[\big(\mathrm{Cont}(x, y) \wedge \mathrm{Cont}(y, x)\big) \rightarrow =(x, y)\Big]\Big]$

23. $\forall x\ \forall y\ \forall z\ \Big[\Big[\big(\mathrm{Cont}(x, y) \wedge \mathrm{Cont}(y, z)\big) \rightarrow \mathrm{Cont}(x, z)\Big]\Big]$

24. $\forall x\ \forall y\ \Big[\Big[\mathrm{ZEX}(x) \rightarrow \Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{Cont}(y, x)\big) \wedge \neg\big(\mathrm{Cont}(x, y)\big)\Big)\Big]\Big]$

25. $\forall x\ \forall y\ \Big[\Big[\big(\mathrm{ZEX}(x) \wedge \mathrm{ZEX}(y)\big) \rightarrow =(x, y)\Big]\Big]$

26. $\forall x\ \forall y\ \Big[\Big[\mathrm{P}(x, y) \leftrightarrow \big(\mathrm{Cont}(x, y) \wedge \mathrm{EqDim}(x, y)\big)\Big]\Big]$

27. $\forall x\ \forall y\ \Big[\Big[\mathrm{C}(x, y) \leftrightarrow \exists z\ \big[\big(\mathrm{Cont}(z, x) \wedge \mathrm{Cont}(z, y)\big)\big]\Big]\Big]$

28. $\forall x\ \Big[\neg\big(\mathrm{Inc}(x, x)\big)\Big]$

29. $\forall x\ \forall y\ \Big[\big[\mathrm{Inc}(x, y) \rightarrow \mathrm{Inc}(y, x)\big]\Big]$

30. $\forall x\ \forall y\ \Big[\Big[\mathrm{EqDim}(x, y) \rightarrow \neg\big(\mathrm{Inc}(x, y)\big)\Big]\Big]$

31. $\forall x\ \forall y\ \Big[\Big[\mathrm{Inc}(x, y) \rightarrow \big(\mathrm{lt}(x, y) \vee \mathrm{lt}(y, x)\big)\Big]\Big]$

32. $\forall x\ \forall y\ \Big[\Big[\big(\mathrm{Cont}(x,y) \wedge \mathrm{lt}(x,y)\big) \rightarrow \mathrm{Inc}(x,y)\Big]\Big]$

33. $\forall x\ \forall y\ \forall z\ \Big[\Big[\big(\mathrm{Inc}(x,y) \wedge \mathrm{P}(y,z)\big) \rightarrow \mathrm{Inc}(x,z)\Big]\Big]$

34. $\forall x\ \forall y\ \Big[\Big[\mathrm{Inc}(x,y) \leftrightarrow \Big(\exists z\ \Big[\Big(\mathrm{leq}(z,x) \wedge \neg\big(\mathrm{EqDim}(z,x)\big) \wedge \mathrm{Cont}(z,x) \wedge \mathrm{P}(z,y)\Big)\Big] \vee \exists z\ \Big[\Big(\mathrm{leq}(z,y) \wedge \neg\big(\mathrm{E}$

35. $\forall x\ \Big[\Big[\Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{ZEX}(x)\big)\Big) \rightarrow \mathrm{PO}(x,x)\Big]\Big]$

36. $\forall x\ \forall y\ \Big[\big[\mathrm{PO}(x,y) \rightarrow \mathrm{PO}(y,x)\big]\Big]$

37. $\forall x\ \forall y\ \Big[\big[\mathrm{PO}(x,y) \rightarrow \mathrm{EqDim}(x,y)\big]\Big]$

38. $\forall x\ \forall y\ \Big[\Big[\mathrm{PO}(x,y) \leftrightarrow \exists z\ \Big[\big(\mathrm{P}(z,x) \wedge \mathrm{P}(z,y)\big)\Big]\Big]\Big]$

39. $\forall x\ \Big[\Big[\mathrm{Max}(x) \leftrightarrow \Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{ZEX}(x)\big) \wedge \forall y\ \Big[\neg\big(\mathrm{PP}(x,y)\big)\Big]\Big)\Big]\Big]$

40. $\forall x\ \Big[\Big[\mathrm{Min}(x) \leftrightarrow \Big(\mathrm{S}(x) \wedge \neg\big(\mathrm{ZEX}(x)\big) \wedge \forall y\ \Big[\neg\big(\mathrm{PP}(y,x)\big)\Big]\Big)\Big]\Big]$

41. $\forall x\ \forall y\ \Big[\Big[\mathrm{PP}(x,y) \leftrightarrow \Big(\mathrm{P}(x,y) \wedge \neg\big(=(x,y)\big)\Big)\Big]\Big]$

42. $\forall x\ \forall y\ \Big[\Big[\mathrm{BCont}(x,y) \rightarrow \Big(\mathrm{Cont}(x,y) \wedge \neg\big(\mathrm{EqDim}(x,y)\big)\Big)\Big]\Big]$

43. $\forall x\ \forall y\ \forall v\ \forall z\ \Big[\Big[\big(\mathrm{SC}(x,y) \wedge \mathrm{Min}(x) \wedge \mathrm{P}(x,v) \wedge \mathrm{Cont}(y,v) \wedge \mathrm{Cont}(z,x) \wedge \mathrm{Cont}(z,y)\big) \rightarrow \mathrm{BCont}(z,x)\Big]\Big]$

44. $\forall x\ \forall y\ \forall z\ \forall v\ \Big[\Big[\big(\mathrm{SC}(x,y) \wedge \mathrm{P}(x,v) \wedge \mathrm{P}(y,v) \wedge \mathrm{Cont}(z,x) \wedge \mathrm{Cont}(z,y) \wedge \mathrm{Covers}(v,z)\big) \rightarrow \neg\big(\mathrm{BCont}(z,v)\big)\Big]$

45. $\forall x\ \forall y\ \forall z\ \Big[\Big[\Big(\mathrm{BCont}(x,y) \wedge \mathrm{P}(y,z) \wedge \forall v\ \forall w\ \Big[\Big[\Big(\mathrm{P}(v,z) \wedge \neg\big(\mathrm{PO}(v,y)\big) \wedge \mathrm{P}(w,x)\Big) \rightarrow \neg\big(\mathrm{Cont}(w,v)\big)\Big]\Big]\Big)$

46. $\forall x\ \forall y\ \forall z\ \Big[\Big[\big(\mathrm{BCont}(x,y) \wedge \mathrm{Cont}(z,x)\big) \rightarrow \mathrm{BCont}(z,y)\Big]\Big]$

47. $\forall x\ \forall y\ \left[\left[\text{Covers}(x,y) \leftrightarrow \left(\text{lt}(y,x) \wedge \forall z\ \left[\left[\text{S}(z) \rightarrow \neg\left(\text{lt}(y,z) \wedge \text{lt}(z,x)\right)\right]\right]\right)\right]\right]$

48. $\forall x\ \forall y\ \left[\left[\text{gt}(x,y) \leftrightarrow \text{lt}(y,x)\right]\right]$

49. $\forall x\ \forall y\ \left[\left[\text{geq}(x,y) \leftrightarrow \text{leq}(y,x)\right]\right]$

50. $\forall x\ \forall y\ \left[\left[\text{lt}(x,y) \leftrightarrow \left(\text{leq}(x,y) \wedge \neg\left(\text{EqDim}(x,y)\right)\right)\right]\right]$

51. $\forall x\ \left[\left[\text{Closed}(x) \leftrightarrow \forall y\ \left[\neg\left(\text{BCont}(y,x)\right)\right]\right]\right]$