Practice Proofs

1. $-(x)Fx \dashv\vdash (\exists x)-Fx$

2. $-(\exists x)Fx \dashv\vdash (x)-Fx$

3. $(\exists x)-Fx \vdash (\exists x)(Fx \rightarrow P)$

4. $-(x)Fx \vdash (\exists x)(Fx \rightarrow P)$

5. $\vdash (\exists x)Fx \vee (y)-Fy$

6. $(\exists x)(Fx \rightarrow P) \dashv\vdash (x)Fx \rightarrow P$

7. $(x)(Fx \rightarrow P) \dashv\vdash (\exists x)Fx \rightarrow P$

8. $(x)(P \rightarrow Fx) \dashv\vdash P \rightarrow (x)Fx$

9. $(\exists x)(P \rightarrow Fx) \dashv\vdash P \rightarrow (\exists x)Fx$

10. $(x)(Fx \rightarrow -Fx) \dashv\vdash -(\exists x)Fx$

11. $(\exists x)(Fx \vee Gx) \dashv\vdash (\exists x)Fx \vee (\exists x)Gx$

12. $(\exists x)(Fx \& Gx) \vdash (\exists x)Fx \& (\exists x)Gx$

13. $(x)Fx \vee (x)Gx \vdash (x)(Fx \vee Gx)$

14. $P \vee (x)Fx \dashv\vdash (x)(P \vee Fx)$

15. $P \& (\exists x)Fx \dashv\vdash (\exists x)(P \& Fx)$

16. $(x)(y)Rxy \dashv\vdash (y)(x)Rxy$

17. $(\exists x)(\exists y)Rxy \dashv\vdash (\exists y)(\exists x)Rxy$

18. $(\exists x)(y)Rxy \vdash (y)(\exists x)Rxy$

19. $(\exists x)Rxx \vdash (\exists x)(\exists y)Rxy$

20. $(x)(y)Rxy \vdash (x)Rxx$

21. $(\exists x)(Fx \,\&\, (y)(Gy \rightarrow Rxy)), (x)(Fx \rightarrow (y)(Hy \rightarrow -Rxy)) \vdash (x)(Fx \rightarrow -Hx)$

22. $\vdash (x)(Rxx \rightarrow (\exists y)Rxy)$

23. $\vdash (\exists x)(y)[Rxy \rightarrow (z)(\exists z')Rzz']$

24. $\vdash (x)(\exists y)[Rxy \rightarrow (z')(\exists z)Rzz']$

25. $\vdash (\exists x)(Fx \rightarrow (y)Fy)$

26. $\vdash (\exists x)((\exists y)Fy \rightarrow Fx)$

27. $(x)Fx \rightarrow (x)Gx \vdash (\exists x)(Fx \rightarrow Gx)$

28. $\vdash (\exists x)(y)(Fy \rightarrow Fx)$

29. $\vdash (\exists x)(y)(Fx \rightarrow Fy)$

30. $\vdash (x)((Fx \rightarrow Gx) \lor (Gx \rightarrow Fx))$

31. $(\exists x)Fx \rightarrow (\exists x)Gx \vdash (\exists x)(Fx \rightarrow Gx)$

32. $(x)(\exists y)(Fx \rightarrow Gy) , (x)(\exists y)(-Fx \rightarrow Gy) \vdash (\exists z)Gz$

33. $(x)(y)(Gy \rightarrow Fx) \dashv\vdash (x)((\exists y)Gy \rightarrow Fx)$

34. $(\exists x)(y)(Fx \rightarrow Gy) \dashv\vdash (\exists x)(Fx \rightarrow (y)Gy)$

35. $(\exists x)(y)(Fx \rightarrow Gy) \dashv\vdash (x)Fx \rightarrow (x)Gx$

36. $(\exists x)(Fx \rightarrow (\exists y) - Fy) \vdash -(x)Fx$

37. $(\exists x)(y)(z)((Fy \rightarrow Gz) \rightarrow (Fx \rightarrow Gx))$

38. $(x)(\exists y)(Fx \rightarrow Gy) \vdash (\exists y)(x)(Fx \rightarrow Gy)$

39. $(x)(y)(Rxy \rightarrow -Ryx) \vdash (x) - Rxx$

40. $(x)Rxx \vdash (x)(\exists y)Rxy$

41. $-(\exists x)(y)(Rxy \leftrightarrow -Ryy)$

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