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|-----|---|------------------------|
| 1. | $\forall x (\exists y (M(x,y) \vee M(y,x)) \Rightarrow M(x,x))$ | P |
| 2. | $\exists x \exists y M(x,y)$ | P |
| 3. | $x_0 : \exists y M(x_0,y)$ | W |
| 4. | $\exists y (M(x_0,y) \vee M(y,x_0)) \Rightarrow M(x_0,x_0)$ | $e \forall x, 1$ |
| 5. | $y_0 : M(x_0,y_0)$ | W |
| 6. | $M(x_0,y_0) \vee M(y_0,x_0)$ | $i \forall, 5$ |
| 7. | $\exists y (M(x_0,y) \vee M(y,x_0))$ | $i \exists y, 6$ |
| 8. | $M(x_0,x_0)$ | $e \Rightarrow, 7, 4$ |
| 9. | $M(x_0,x_0)$ | $e \exists y, 3, 5-8$ |
| 10. | $\exists x M(x,x)$ | $i \exists x, 9$ |
| 11. | $\exists x M(x,x)$ | $e \exists x, 2, 3-10$ |