**Logic Tool Results**

Main Expression:  
⊢∃y∀xP(x,y)→∀x∃yP(x, y)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Line | Expression | Rule | First Segment | Second Segment | Third Segment |
| ┌--------------------------------------------------------------------------------------------------------------┐ | | | | | |
| 1 | ∃y∀xP(x,y) | Assumption |  |  |  |
| 2 | X0 | None |  |  |  |
| 3 | Y0 | None |  |  |  |
| ┌------------------------------------------------------------------------------------------------------┐ | | | | | |
| 4 | ∀xP(x,Y0) | Assumption |  |  |  |
| 5 | P(X0,Y0) | ∀x e | 4 |  |  |
| 6 | ∃yP(X0,y) | ∃y i | 5 |  |  |
| └------------------------------------------------------------------------------------------------------┘ | | | | | |
| 7 | ∃yP(X0,y) | ∃y e | 1 | 4-6 |  |
| 8 | ∀x∃yP(x,y) | ∀x i | 1-6 |  |  |
| └--------------------------------------------------------------------------------------------------------------┘ | | | | | |
| 9 | ∃y∀xP(x,y)→∀x∃yP(x,y) | →i | 1-8 |  |  |