```
flip_bijection  THM

⊢  ∀k:ℕ, i,j:ℕk. Bij(ℕk; ℕk; (i, j))
| by Unfold ‘biject‘ 0 THEN Unfolds ‘‘inject surject‘‘ 0 THEN Auto’
|
|\
| 1. k : ℕ
| 2. i : ℕk
| 3. j : ℕk
| 4. a1 : ℕk
| 5. a2 : ℕk
| 6. (i, j)(a1) = (i, j)(a2)
| ⊢  a1 = a2
|   by MoveToConcl (-1) THEN Unfold ‘flip‘ 0 THEN Reduce 0
|
|      THEN Repeat (SplitOnConclITE THEN Auto’)
| THEN MoveToConcl (-1)
|
| THEN Repeat (SplitOnConclITE THEN Auto’)
|
|      THEN MoveToConcl (-1)
| THEN Repeat (SplitOnConclITE THEN Auto’)
|
| THEN MoveToConcl (-1)
|
|      THEN Repeat (SplitOnConclITE THEN Auto’)
|
.\
. 1. k : ℕ
. 2. i : ℕk
. 3. j : ℕk
. 4. b : ℕk
. ⊢  ∃a:ℕk. (i, j)(a) = b  by InstConcl [(i, j)(b)] THENA Auto
. |
. 1. k : ℕ
. 2. i : ℕk
. 3. j : ℕk
. 4. b : ℕk
. ⊢  (i, j)((i, j)(b)) = b
.   by  Unfold ‘flip‘ 0 THEN Reduce 0
.
.      THEN Repeat (SplitOnConclITE THEN Auto’ THEN MoveToConcl (-1))
END
```