

```
SET_RCHD_AT:
q1 = ¬(p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))) -[ Commute ]-> q1 = ¬(p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q1 = ¬(p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))) -[ Fail ]-> q3 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q1 = ¬(p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))) -[ Tic ]-> q1 = ¬(p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q2 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), ¬(p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))) -[ Repair ]-> q3 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q2 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), ¬(p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))) -[ Tic ]-> q2 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), ¬(p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))) -[ Commute ]-> q3 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = 3(nb).(&(and(nb ∈ [1..n]), &(bat(nb)=ko[8])))), (p1 = ∃(i, j).(&(and(i ∈ [1..n], j ∈ [1..n]), &(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
```

```
bat(j)=ok[9])) -[ Fail ]-> q2 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), ¬(p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Fail ]-> q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Repair ]-> q1 = ¬(p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Repair ]-> q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Tic ]-> q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i
≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
```

SET\_RCHD\_EXPECTED\_AT:

```
q2 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), ¬(p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Repair ]-> q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Repair ]-> q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
q3 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), (p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]), and(i ≠ j, bat(i)=ok[9],
bat(j)=ok[9])))) -[ Fail ]-> q2 = (p0 = ∃(nb).(and(and(nb ∈ [1..n]), and(bat(nb)=ko[8]))), ¬(p1 = ∃(i, j).(and(and(i ∈ [1..n], j ∈ [1..n]),
and(i ≠ j, bat(i)=ok[9], bat(j)=ok[9]))))
```

SET\_UNRCHD\_AS:

SET\_UNRCHD\_EXPECTED\_AS:

SET\_UNRCHD\_AT:

SET\_UNRCHD\_EXPECTED\_AT:

TIME\_ATS: 00:10:38.713