

$$1 \leq r < |A| \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \rightarrow \neg (A \neq \emptyset) = 0$$

for all $r \neq y \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \rightarrow \neg (A \neq \emptyset)$ is true for all $r \neq y$ and $A \neq \emptyset$ and $r \neq y$

$$\equiv (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \rightarrow \neg (A \neq \emptyset)$$

$$\equiv (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \rightarrow \neg (A \neq \emptyset)$$

$$\textcircled{2} \equiv (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \rightarrow \neg (A \neq \emptyset)$$

$$\text{or } 1 \leq r < |A|$$

Let's show that all the above is true

$$0 \leq r-1 < |A| \wedge 0 \leq r < |A| \wedge 1 \leq r < |A|+1 \wedge 0 \leq r < |A|$$

$$\textcircled{1} \text{ def}(A) \wedge \text{def}(r) \wedge \text{def}(A \neq \emptyset) \wedge 0 \leq r < |A| \equiv$$

$$\text{def}(A \neq \emptyset) \wedge \text{def}(r) \wedge \text{def}(A \neq \emptyset) \wedge 0 \leq r < |A| \equiv$$

$$\text{def}(A \neq \emptyset) \wedge \text{def}(r) \wedge \text{def}(A \neq \emptyset) \wedge 0 \leq r < |A| \equiv$$

$$\text{def}(A \neq \emptyset) \wedge \text{def}(r) \wedge \text{def}(A \neq \emptyset) \wedge 0 \leq r < |A| \equiv$$

False

$$\equiv -2 \leq r < |A|-2 \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \wedge (A \neq \emptyset) \wedge (0 \leq y < |A| \wedge r \neq y) \rightarrow \neg (A \neq \emptyset)$$