

79 Using the syntax  $x$  **can fool**  $y$  **at time**  $t$  formalize the statements

(a) You can fool some of the people all of the time.

(b) You can fool all of the people some of the time.

(c) You can't fool all of the people all of the time.

for each of the following interpretations of the word "You":

(i) Someone

(ii) Anyone

(iii) The person I am talking to

That's  $3 \times 3 = 9$  questions.

After trying the question, scroll down to the solution.

§(a i) It is doubtful whether the indefinite “You” in English can be used to mean “Someone”. But that's what the question says, so I'll answer it. One possibility is

$$\exists x \cdot \exists y \cdot \forall t \cdot x \text{ can fool } y \text{ at time } t$$

That means there's someone, the fooler, and someone (maybe someone else or maybe the same someone again), the foolee, and this fooler can always fool this foolee. Another possibility is

$$\exists x \cdot \forall t \cdot \exists y \cdot x \text{ can fool } y \text{ at time } t$$

That means there's someone, the fooler, who can always fool someone, the foolee, though not necessarily always the same foolee. These two possibilities are not the same, and I really don't know which one is meant.

(b i)  $\exists x \cdot \forall y \cdot \exists t \cdot x \text{ can fool } y \text{ at time } t$   
or maybe  $\exists x \cdot \exists t \cdot \forall y \cdot x \text{ can fool } y \text{ at time } t$

(c i)  $\exists x \cdot \neg \forall y \cdot \forall t \cdot x \text{ can fool } y \text{ at time } t$

(a ii)  $\forall \cdot \exists y \cdot \forall t \cdot x \text{ can fool } y \text{ at time } t$   
or maybe  $\forall x \cdot \forall t \cdot \exists y \cdot x \text{ can fool } y \text{ at time } t$

(b ii)  $\forall x \cdot \forall y \cdot \exists t \cdot x \text{ can fool } y \text{ at time } t$   
or maybe  $\forall x \cdot \exists t \cdot \forall y \cdot x \text{ can fool } y \text{ at time } t$

(c ii)  $\forall x \cdot \neg \forall y \cdot \forall t \cdot x \text{ can fool } y \text{ at time } t$

(a iii)  $\exists y \cdot \forall t \cdot$  The person I am talking to **can fool**  $y$  **at time**  $t$   
or maybe  $\forall t \cdot \exists y \cdot$  The person I am talking to **can fool**  $y$  **at time**  $t$

(b iii)  $\forall y \cdot \exists t \cdot$  The person I am talking to **can fool**  $y$  **at time**  $t$   
or maybe  $\exists t \cdot \forall y \cdot$  The person I am talking to **can fool**  $y$  **at time**  $t$

(c iii)  $\neg \forall y \cdot \forall t \cdot$  The person I am talking to **can fool**  $y$  **at time**  $t$