

PodClass Handout Week 3

Examples

All fish can fly

All things that can fly can talk

Therefore, all fish can talk

All mechanical objects are noisy

All planes are mechanical objects

All planes are noisy

All carbonated drinks are bubbly beverages

All hard seltzers are carbonated drinks

All all hard seltzers are bubbly beverages

All the people in Santa Barbara county are in California

All the people in the city of Santa Barbara are in Santa Barbara county

All the people in the city of Santa Barbara are in California

All As are B

All Cs are A

All Cs are B

Today is Monday or it is Tuesday

It is not Tuesday, yet

So it is Monday

Raphael painted The School of Athens, or Michelangelo did

Michelangelo did not paint The School of Athens,

Hence, Raphael painted The School of Athens

Either the Golden State Warriors won the 2018 NBA championship, or the Cleveland Cavaliers did

the Cleveland Cavaliers did not win the 2018 NBA Championship

Therefore, the Golden State Warriors won the 2018 NBA championship

Either P or Q

It is not the case that Q

Therefore P

If I have the wifi password, then I can connect to the internet

I am connected to the internet

So, I must have the wifi password

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It is not the case that
And
Either ... or ...
If ... then...

The Grand Canyon is not in California.
 $\sim P$

Cats make great pets and I live in Las Vegas.
 $P \& Q$

I will have coffee or I will clean the apartment.
 $P \vee Q$

If you are a parent, then you have kids.
 $P \rightarrow Q$

I live in a van.
 V

It is not the case that I live in a van.
 $\sim V$

I live in a van, and I live down by the river.
 $V \& R$

$A \& B$
 $\sim(A \& B)$
 $(A \& B) \vee (B \& C)$
 $\sim((A \& B) \vee (B \& C))$

It is not the case that I live in the van or I live down by the river.
 $\sim V \vee R$

If I am from South East Texas, then it is not the case that I live in a van or I live down by the river.
 $T \rightarrow (\sim V \vee R)$

If we go to In-N-Out, then you can have a Hamburger or a Milkshake.
 $N \rightarrow (H \vee M)$

$P \rightarrow (Q \vee S)$ $(P \rightarrow Q) \vee S$

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I am a Crook. (C)

C		$\sim C$
TRUE	Nixon	FALSE
FALSE	Tom	TRUE

It is true of Nixon that he is a crook, so when he says “I am not a crook” he said something false. Tom is not a crook, so it is false that he is a crook, and it is true that he is not a crook.

I own a cat, and I own a dog. (C & D)

C	D		C & D
TRUE	TRUE	Animal Lover	TRUE
TRUE	FALSE	Cat Person	FALSE
FALSE	TRUE	Dog Person	FALSE
FALSE	FALSE	Non-pet Person	FALSE

It is true that the animal lover has both a dog and a cat, and so the conjunction is true of them. It is false that the cat person has a dog, and it is false that the dog person has a cat, so the conjunction is false about these people. The conjunction is false of the person who owns no pets.

I am an American or I am a Canadian. (A V C)

A	C		A V C
FALSE	FALSE	Adel	FALSE
TRUE	FALSE	James Brown	TRUE
FALSE	TRUE	Celine Dion	TRUE
TRUE	TRUE	Keanu Reeves	TRUE

If I cook, then you clean. ($I \rightarrow Y$)

I	C		$I \rightarrow Y$
TRUE	TRUE	I made dinner and you cleaned	TRUE
FALSE	FALSE	We ate out and there was no dishes	TRUE
FALSE	TRUE	We ate out, but you did the dishes from last night.	TRUE
TRUE	FALSE	I cooked, but you did not clean	FALSE

The conditional statement, the one in the last column, is false only when the antecedent is true, while the consequent is false. The conditional statement is true even when no one cooks and we go out to eat.