Not Both

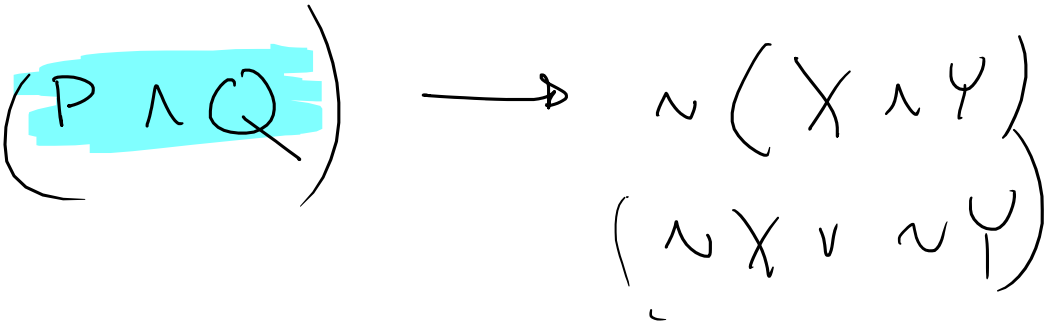
September 20, 2016 2:38 PM

$X \wedge \sim Y$

Assuming that they both of have a coffee, not both Rick and Sarah walk to school

P: Rick has a coffee. Q: Sarah has a coffee. X: Rick walks to school. Y: Sarah walks to school.

$\sim X \wedge Y$



Although N&S

September 26, 2016 1:53 PM

Although studying is a necessary and sufficient condition for getting an A, neither Jim nor Sara will study unless they both get lots of sleep.

P: One studies. Q: One gets an A. R: Jim studies. S: Sara studies. W: Jim gets lots of sleep. Z: Sara gets lots of sleep.

Neither Nor

September 20, 2016 2:39 PM

Neither Peter nor Sarah walking to school is a sufficient condition for at least two of Peter, Sarah, and Rick not having their coffee.

P: Peter walks to school. Q: Sarah walks to school. X: Peter has coffee. Y: Sarah has coffee. Z: Rick has coffee.

Only

September 20, 2016 2:40 PM

Only on the assumption that Avery goes to school will Stella be ~~neither~~ sad nor ~~tired~~.

P: Avery goes to school. Q: Stella will be sad. R: Stella will be tired.

$P \rightarrow \sim(Q \vee R)$

$\sim(Q \vee R) \rightarrow P$

Only

September 23, 2016 10:32 AM

$S \rightarrow (X \vee Y) \wedge \sim (X \wedge Y)$

Provided that Quentin is in a bad mood, Sarah will show up only if she is awake or excited, but not both.

Q: Quentin is in a bad mood. S: Sarah will show up. X: Sarah is awake. Y: Sarah is excited.

$Q \rightarrow S \rightarrow (X \vee Y) \wedge \sim (X \wedge Y)$

$(X \wedge \sim Y) \vee (\sim X \wedge Y)$

$\sim (X \leftrightarrow Y)$

Translation

Translate the following symbolic sentence into IDIOMATIC English using the provided abbreviation scheme.

$$(P \wedge Q) \vee (P \wedge R) \vee (R \wedge Q) \rightarrow \sim (X \wedge Y \wedge Z)$$

P: Adam goes to the party. Q: Betty goes to the party. R: Carl goes to the party.
X: Adam will be happy. Y: Betty will be happy. Z: Carl will be happy.

2016F 7

January 16, 2017 12:45 PM

If either Hillary Clinton is arrested or minorities don't vote, Donald Trump will win. (2)

P: Donald Trump will win. Q: Hillary Clinton is arrested. R: Minorities vote.

$$Q \vee \sim R \rightarrow P$$

2016F 8

January 16, 2017 12:45 PM

$P \rightarrow \sim(Q \vee R)$ $\sim Q \wedge \sim R$

Only provided that I eat protein will I be neither hungry nor tired. (3)
P: I eat protein. Q: I will be hungry. R: I will be tired.

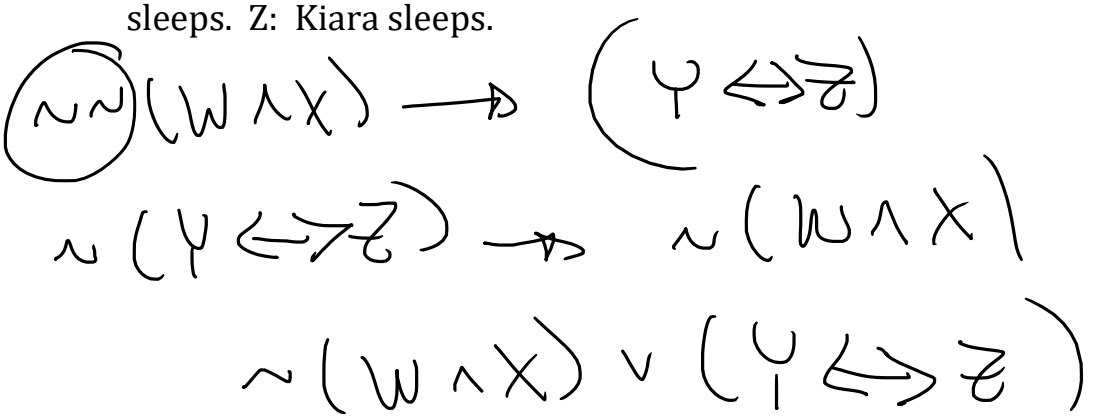
$\sim(Q \vee R) \rightarrow P$

2016F 9

January 16, 2017 12:46 PM

Not both Richard and Monica are happy, unless Serena sleeps when and only when Kiara does too. (3)

W: Richard is happy. X: Monica is happy. Y: Serena sleeps. Z: Kiara sleeps.



2016F 10

January 16, 2017 12:46 PM

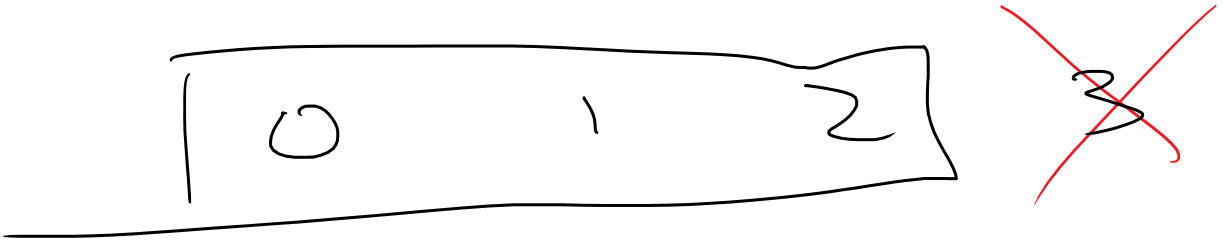
Assuming that none of Tim, Norm, or Agatha have kids, at most two of them will show up. (3)

P: Tim has kids. Q: Norm has kids. R: Agatha has kids.
X: Tim will show up.
Y: Norm will show up. Z: Agatha will show up.

$\sim P \wedge \sim Q \wedge \sim R \rightarrow \sim(X \wedge Y \wedge Z)$

$\sim(P \vee Q \vee R)$

$\sim(P \vee Q \vee R) \vee \ldots$



2016F 11

January 16, 2017 12:46 PM

Only if it doesn't rain, Dan going for a walk is a necessary condition for him to get groceries together with flowers. (4)

P: It rains. Q: Dan gets groceries. R: Dan goes for a walk.
S: Dan gets flowers.