

Parentheses disambiguate:

Bad(bob) \vee Bewildered(bob) \wedge Bogeyman(bob)

How are the following two interpretations different?

(Bad(bob) \vee Bewildered(bob)) \wedge Bogeyman(bob)

“Bob is bad or bewildered, and he is a bogeyman.”

Bad(bob) \vee (Bewildered(bob) \wedge Bogeyman(bob))

“Bob is bad, or he’s a bewildered bogeyman”

Complex sentences with negation:

$\neg \text{Bad}(\text{bob}) \wedge \neg \text{Bogeyman}(\text{bob})$

"Bob is not bad, and he's not a bogeyman"

$\neg(\text{Bad}(\text{bob}) \wedge \text{Bogeyman}(\text{bob}))$

"Bob is not a bad bogeyman" or

*"It's not the case that Bob is **both bad and a bogeyman**"*

(though he might be *just* bad, or *just* a bogeyman)

$\neg(\neg \text{Bad}(\text{bob}) \wedge \neg \text{Bogeyman}(\text{bob}))$

"It's not true that Bob is neither bad nor a

There is sometimes *more than one*
way to logically state the same thing

...

DeMorgan's Laws:

$$\neg(P \wedge Q) \quad \square \quad (\neg P \vee \neg Q)$$

$$\neg(P \vee Q) \quad \square \quad (\neg P \wedge \neg Q)$$