Tutorial 6

① ~~∀x~~ ∀x (passing (x, History) ∧ winning (x, lottery)) => Happy (x)

② ∀x ((studies (x) ∨ lucky (x)) => passing (x, Exams))

③ ¬ Studies (John) ∧ Lucky (John)

④ ∀x (Lucky (x) => ~~lottery~~ winning (x, lotty))

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① ∀x ¬ (passing (x, History) ∧ winning (x, lottery)) ∨ Happy (x))

② ∀x ¬ ((Studies (x) ∨ Lucky (x)) ∨ passing (x, Exams))

③ ¬ Studies (John) ∧ Lucky (John)

④ ∀x (¬ ~~Lucky~~ Lucky (x) ∨ winning (x, lottery))

① $\forall x \quad (\neg passing(x, History) \vee \neg winning(x, lottery)) \vee Happy(x)$

② $\forall x \forall y \; (\neg Study(x) \wedge \neg Lucky(x)) \vee Pass(x, y)$

③ ~~$\neg$①~~ ''

④ ''

Distribuendo $\wedge$ over $\vee$

② $(\neg Study(x) \vee Pass(x, y)) \wedge (\neg Lucky(x) \vee Pass(x, y))$

1. $\neg Pass(x1, History) \vee \neg Win(x1, Lottery) \vee Happy(x1)$
2. $(\neg Study(x) \wedge Lucky(x)) \vee Pass(x, y)$
3. ''
4. ''