Predicate Logic

* What is predicate logic?
* Ontology: propositional logic +

3. Validity

* Use propositional logic rules to prove validity + 4 new rules
* 4 rules: E.I. / U.I. / E.G. / U.G.
* Instantiation: replace universal/existential quantifiers with individual variables. If there aren’t variables specified in the conclusion, use ambiguous names. (a)
* Keep Order!

E.I. 🡪 E.G.

E.I. 🡪 U.I.

U.I. 🡪 U.G.

E.G. 🡪 U.G.

Because of existential fallacy (can’t go from universal to existential)

* \*(Ex) P ^ (Ex) P is NOT EQUAL to (Ex)(P ^ P) (마음대로 분산 X)
* Quantified Exchanger(Q.E.) = Bodenski Principle

: The truth value of a quantified proposition does not change if and only if when the quantifier is replaced by the other, and at the same time, both the quantifier and the propositional function are negated.

1. (Vx)(Nx) <-> ~(Ex)~(Nx)
2. (Ex)(Nx) <-> ~(Ax)~(Nx)
3. (Vx)~(Nx) <-> ~(Ex)(Nx)
4. (Ex)~(Nx) <-> ~(Ax)(Nx)

\*When the premise looks like the right side column, must use Q.E. before proving it!