Predicate Logic, III

∀ ∃ in English

Math vs. English

Poet: \( \overline{G} \overline{Au} \)

“All that glitters is not gold.”

\( \forall x. [G(x) \implies \overline{Au(x)}] \)

No: gold glitters like gold!

Math vs. English

Poet: necessarily

“All that glitters is not gold.”

\( \neg (\forall x. [G(x) \implies Au(x)]) \)

(Poetic license)

Math vs. English

Poet: “There is a season to every purpose under heaven”

\( \exists s \in \text{Season} \forall p \in \text{Purpose}. s \text{ is for } p \)

Some season, say Summer, is good for all Purposes?

NO, Summer no good for snow shoveling
Math vs. English

Poet: “There is a season to every purpose under heaven”

\( \exists s \in \text{Season} \forall p \in \text{Purpose}. s \text{ is for } p \)

Poet’s meaning flips the quantiers

for snow shoveling, Winter is good
for planting, Spring is good
for leaf watching, Fall is good