Translation.

Consider the sentence:

A person who admires a critic admires a painter whom that critic admires. \( (*) \)

In lecture, Halvorson translated this sentence as:

\[
(x)(y)(((Cy \& Axy) \rightarrow (z)((Pz \& Ayz) \rightarrow Axz)).
\] (1)

After a dispute, an alternative translation was written down:

\[
(x)(y)(((Cy \& Axy) \rightarrow (∃z)(Pz \& (Ayz \rightarrow Axz))). \] (2)

It turns out that this alternative is incorrect — in particular because the alternative would be true if:

Each critic doesn’t admire some painter. \( (†) \)

That is, the sentence

\[
(y)(Cy \rightarrow (∃z)(Pz \& ¬ Ayz)).
\] (3)

logically implies (2). But sentence \((†)\) does not logically imply sentence \((*)\). (Think about it.) So, (2) cannot be a correct interpretation of \((*)\). (Also, as a rule of thumb, a translation of an English sentence should never have “\(\rightarrow\)” in the scope of an existential quantifier. Thanks to Feng-Yen Li for the reminder.) However, the following sentence is also a legitimate translation of \((*)\):

\[
(x)(y)(((Cy \& Axy) \rightarrow (∃z)((Pz \& Ayz) \& Axz))).\] (4)

So, the English sentence \((*)\) is ambiguous, and can be translated either as (1) or as (4).