

**Translation.**

Consider the sentence:

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

In lecture, Halvorson translated this sentence as:

$$(x)(y)((Cy \& Axy) \rightarrow (z)((Pz \& Ayz) \rightarrow Axz)). \quad (1)$$

After a dispute, an alternative translation was written down:

$$(x)(y)((Cy \& Axy) \rightarrow (\exists z)(Pz \& (Ayz \rightarrow Axz))). \quad (2)$$

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

$$(y)(Cy \rightarrow (\exists z)(Pz \& \neg Ayz)). \quad (3)$$

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 (★):

$$(x)(y)((Cy \& Axy) \rightarrow (\exists z)((Pz \& Ayz) \& Axz)). \quad (4)$$

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