

Assignment 11

Problem 11.1

according to problem description,

- concept : student, course, woman

- roles : has_registered, taught-by, is-student

ALC conversion :

01. student $\sqcap \exists \text{has_registered.course}$

02. (student $\sqcap \forall \text{has_registered.course}$) $\sqsubseteq \forall \text{taught-by.woman}$

03. $\forall \text{has_registered.T} \sqsubseteq \forall \text{is_student.T}$

ALC formula into FOL :

01. $\forall x (\text{student}(x) \wedge \exists y (\text{has_registered}(x,y) \wedge \text{course}(y)))$

02. $\forall x (\text{student}(x) \wedge \forall y (\text{has_registered}(x,y) \rightarrow \text{course}(y)))$

$\rightarrow (\forall z (\text{taught-by}(y,z) \rightarrow \text{woman}(z)))$

03. $\forall x \forall y \text{has_registered}(x,y) \rightarrow \text{is_student}(x)$