

Chapter Three Translation Problems Set 4 #A2, #A4, #A5: WebCT Discussion

Problem: **Translate** each of the following English sentences into the formal language.

Discussion:

A2. They won't hold the reptile rodeo unless the weather improves.
(P: They will hold the reptile rodeo. Q: The weather improves.)

We begin the translation by picking out the form phrases – here, “*n’t*” and “*unless*”.

A2. They won't hold the reptile rodeo ~~unless~~ the weather improves.
(P: They will hold the reptile rodeo. Q: The weather improves.)

Apart from these are the form-less subject matter sentences, each taking a sentence letter: “*They will hold the reptile rodeo*” and “*The weather improves*”.

P **Q**

A2. They won't hold the reptile rodeo unless the weather improves.
(P: They will hold the reptile rodeo. Q: The weather improves.)

n't **P** unless **Q**

“n’t” is translated by the tilde. “Unless” is translated by the vel (with outer parentheses).

n't **P** unless **Q**
 $(\sim \mathbf{P} \vee \mathbf{Q})$

A4. Both the picnic and the boat race will be held, although the weather isn't sunny.

(**P**: The picnic will be held. **Q**: The boat race will be held. **R**: The weather is sunny)

A4 has the form phrases are “*both... and*,” “*although*,” and “*n’t*”, leaving the subject matter sentences “*The picnic will be held*,” “*The boat race will be held*,” and “*The weather is sunny*”.

P **Q** **R**

A4. ~~Both~~ the picnic ~~and~~ the boat race will be held, ~~although~~ the weather isn't sunny.

(**P**: The picnic will be held. **Q**: The boat race will be held. **R**: The weather is sunny)

Both **P** and **Q**, although n't **R**

Here “although” is the main glue of the sentence, connecting together “Both P and Q” and “R”. “Although is translated by the wedge (with parentheses).

Both P and Q, **although** n't R
(Both P and Q \wedge n't R)

“*Both... and*” is also translated by a wedge (with parentheses); “*n’t*” is translated by the tilde.

(**Both P and Q** \wedge **n't R**)
((P \wedge Q) \wedge \sim R)

A5 has four form phrases: the three negation phrases “*not*,” “*fail to*,” and “*ir-*,” and the conjunction phrase “*even though*”.

A5. Rex will ~~not fail to~~ appear at his bond hearing, ~~even though~~ he’s ~~ir~~responsible.

(**P**: Rex will appear at his bond hearing. **Q**: Rex is irresponsible.)

The subject matter sentences “*Rex will appear at his bond hearing*” and “*[Rex] is responsible*” are replaced with sentence letters, following the translation table.

P **Q**

A5. Rex will ~~not fail to~~ appear at his bond hearing, ~~even though~~ he’s ~~ir~~responsible.

(**P**: Rex will appear at his bond hearing. **Q**: Rex is irresponsible.)

not fail to **P**, even though ir-**Q**

The three negation phrases are translated by the tilde.

not fail to **P**, even though ir-**Q**
~ ~P even though ~Q

The conjunction phrase “*even though*” is translated by a wedge (with parentheses).

~ ~P even though ~Q
(~~P \wedge ~Q)