Thursday, 24 Oct

Q & A

Q1: “If…, then…” vs. “…implies…” (Question raised from slides 19 to 22)

Technically, the logical operator(connective) implication(->) we talk about here corresponds to “…implies…”, instead of “If…, then…”. While “If…, then…” is actually called conditional construction(something that has to be differentiated from implication), which is only to some extent related to implication while it is technically not implication. i.e. Implication(“…implies…”) is one thing however conditional construction(“if…, then…”) is another.
Conditional construction does have to follow the truth table of implication. Slide number 20 is only here to illustrate that in some cases conditional construction can act like implication but definitely not always(as shown on slide 22), this phenomena demonstrates that conditional construction is related to implication. Therefore on slide 22, (22)a. Is actually conditional construction, which does not have to follow the truth table of implication, thus, the truth condition of (22)a remains unclear(due to the fact that it is conditional construction instead of implication). Meanwhile (22)b is strictly an implication(If…, then…), hence follows the truth table of implication and the truth condition is determined(since 1=0 is apparently false).

Understanding of the slides arrangement:
-Slide 20 explains that conditional construction could behave like implication with actual examples in English, this is, how it is related to implication.
-Slide 22 shows the exact example how conditional construction does not have to act like implication with a straight forward comparison between those 2 different situations, the difference is therefore emphasized.

Also, forget about what I said about *implication vs deduction*, Prof. Jäger probably have mentioned the word deduction during the lecture for illustration purpose but that is not the problem here, there is obviously a difference between implication and deduction but it does not apply to the issue we are trying to address in this case. The problem here is actually **implication vs. conditional construction**. Sorry for the confusion. : P

Summary: **Differentiate implication from conditional construction.** They are related(conditional construction can sometimes behave like implication) but technically not the same(not always behave alike).

Q2: Bracketing issue regarding Ex.2

According to my colleague Natalie who came up with this exercise(Quote Natalie):

“The answer lies in the difference between the strict definition according to the inductive rules and the relaxed definition with conventions on omission on brackets. The examples on the slides with some formulas crossed out were apparently assuming the strict definition (hence e.g. (p v q v r) not being well-formed, since one pair of brackets missing), while for the exercises it was intended that a formula can be regarded as well-formed even with brackets being omitted. But I realize now that that was not entirely obvious. See my clarification in the announcements(https://moodle.zdv.uni-tuebingen.de/mod/forum/view.php?id=12843) post I just made.
Concerning your concrete example ¬¬p: We would just add brackets that are supposed to be there according to the strict definition and have ben omitted according to the conventions. But in ¬¬p, there never where any outermost brackets, outermost brackets only come in through binary connectives (according to the way it's done in the book), so the formula with all necessary brackets present ist just ¬¬p, and not (¬¬p).
The non-matching brackets in (8) are not a typo but intended. ”

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Q3: Bonus exercise a) (4)

Hints:
To illustrate an English expression as an expression is not or not purely truth-functional, the meaning of the complex expression is not or not completely determined by the truth values of the sub-expressions that the operator combines has to be shown. Try to find out about subexpressions and complex expressions in each of the given expressions.

Specific hint on (4): “Necessarily” is a logical operator in modal logic. “Many symbolic logic systems exclusively use truth-functional operators, leaving other statements to be handled by predicate symbols, Modal logic is one example, as it makes use of the operators “necessarily (□)” and “possibly (◊)”, which are not truth-functional.” To make your answer more convincing, find out more in the literature(Dowty_Wall_Peters_Kap4-5-2.pdf) about modal logic atteched to this email.

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