

Human Reasoning and the Weak Completion Semantics

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Exercise 4

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Problem 1

Consider the formula $P: a \leftrightarrow b$.

- What will be the least three-valued model under the semantics of Lukasiewicz-logic?
- What will be the other non-least three-valued models under the same semantics?
- Is a , $\neg a$, b or $\neg b$ a *logical consequence* of P ? Please state the reasons for your response.

Problem 2

In the Suppression Task as presented by the WCS manuscript, the conditional used by Byrne in the original experiment, namely *if she has an essay to write, then she must study in the library* seems a bit outdated. This is because, nowadays going to the library is not always so important or mandatory when one has an essay to write. One can simply resort to the internet, for example. Therefore, in view of broader research questions and applications of the Weak Completion Semantics, how the Suppression Task would work in a more modern context and setting is something we would like to consider. The findings may help supplement further research and development of the framework.

To that end, the goal of this exercise is to consider the purpose of the Suppression Task conducted by Ruth Byrne (you can refer to the WCS manuscript) and then imagine it in a modern context. In other words please think of a context (possibly different from the original), such that when replacing the conditionals with those from the context that you propose, we could possibly imitate the original experiment. Also, please consider what the responses should be for the AA, DA, AC and DC tasks, w.r.t the new context and conditionals.