

## NOTES ON HOW-POSSIBLE REASONING

1.

Something is conceivable if and only if there is a way to show how it is possible or why (or how) it is impossible. That is, conceivability of something is understood (either in the sense of possibility or impossibility) by reference to the existence of a conclusive answer to a how-possible question. That seems to require a systematic study of how-possible questions and their answers.

2.

How-possible questions are questions of model-building. Hence, I think, the conceptual background of a proposal on the logic of conceiving the possible and the impossible in tandem needs an explication of the varieties of model-building in logic. The varieties in question seems to be much wider than the usual one in ordinary first-order logic and its modal extensions.

3.

For the general question concerning what is possibly instantiated in one's models, one has to widen the scope of logical consequence relations as far as possible without losing their uninformative character. That is, logical consequences of whatever there is to be conceived in a class of models must not introduce any new (factual) information to the arguments for what else is conceivable in the same models. I think, it does not matter whether the models are normally or non-normally conceived.

4.

Unlike Wittgenstein's conception of logic without surprises, information increases by logical consequence relations in axiomatic analyses. However, that is not an increase in the sense of introducing or seeking for a new truth, i.e. by means of additional quantifier depth and its possibly

instantiated values into the argument.

5.

For the all possibilities case (i.e. concerning the conclusive answers of why-necessary questions, including the impossibles) it is required that all the different kinds of (possible) individuals are instantiated in a universe of all models. We can call this the model-comparison requirement, for it seems to be necessary for model comparisons as well as for building how-possible and why-necessary models. Notice that this has to be a nominalist requirement. Otherwise, higher-order or epistemic load of the primitives lead to ideas concerning model similarities.

6.

On the basis of the model-comparison requirement, the varieties of model-building in thought-experimenting may include premises and conclusions that are not false in the models, in addition to the ones that are true. The varieties built by unrestricted uses of different laws of excluded middle can be studied as further varieties. There can be, for example, contradictory or non-contradictory negations in use, and corresponding laws of the excluded middle.

7.

If the same individuals are used in the different models that are built, it will always be conceivable to transfer an individual from one model to another. Hence similarity of worlds is not needed for conceivability. Identification of the different kinds of individuals existing in different possible worlds is sufficient. How that identification could be possible is an open question.

8.

Conceivability in only one way is a result of building one model while ruling out all the alternatives

where some instantiated individuals are not compossible. That is not to say the ruled out alternatives are not conceivable. That is only to say, a model of how something is possible can as well serve as an explanation of why it is necessary that there is no other conceivable way relative to a specification of a class of models, i.e. an axiomatic theory.