Vacuous Counterpossibles and the Pacific Worlds

According to the standard approach to counterfactuals, "If it were the case that A, then it would be the case that C" is true in the actual world iff either (i) there is no {A}-world, or (ii) every {A, C}-worlds is more similar to the actual world, than any {A, ¬C}-world. The consequence of this approach is that every counterfactual with an impossible antecedent, or necessarily true consequent, is true, which renders all of them vacuously true (Stalnaker 1968, Lewis 1973).

Many have argued that this kind of analysis is insufficient because even though there are true counterfactuals with impossible antecedents, it is not the case that all of them are true. For that reason some philosophers and logicians hold that in order to provide a comprehensive analysis of counterfactuals, one should introduce worlds where what is taken to be impossible is true (e.g. Nolan 1997). This yields a new truth condition for counterfactuals, according to which (CF*) "If it were the case that A, then it would be the case that C" is true in the actual world iff every (*possible* or *impossible*) {A, C}-world is more similar to the actual world, than any of {A, ¬C}-world.

The introduction of impossible worlds into the domain of worlds leads to new investigations into a variety of philosophical questions. Most of these are very similar to debates known from the possible worlds discourse. Thus, philosophers argue about the metaphysical nature of impossible worlds, about the notion of similarity between them, and about the logical structure of these worlds. In my talk I will focus on the last of these issues.

The current debates embody two dominant views on the logical structure of impossible worlds. Based on the nationality of distinctive authors of those views, Graham Priest labels them as "American" and "Australian" (Priest 1997). The starting point that is shared by both approaches is that by possible worlds we mean worlds that are complete and consistent. Since impossible worlds are not possible, they are either inconsistent or incomplete (or both).

According to the American interpretation, impossible worlds are maximal sets of inconsistent sentences, such that at a given world *w*, for some p, p&¬p is true. Since *w* is an impossible world, even though p&¬p is true in it, this does not entail that every sentence and its negation is true at this world as well. This is due to the fact that impossible worlds, contrary to possible ones, are not subject to the relation of logical consequence known from classical logic. Hence in those worlds *ex contradictione quodlibet* does not have to be a valid principle.

The main limitation of American approach is that there is no room for *incomplete* worlds, i.e. such worlds that neither p nor ¬p is true in it. This has serious consequences for the analysis of counterpossibles, and one of them is that every counterpossible of which antecedent is supposed to be true in an incomplete world becomes vacuously false. Consider two examples:

(1) If it were the case that for some p, neither p nor ¬p is true, then the law of the excluded middle would be invalid.

(2) If it were the case that for some p, neither p nor ¬p is true, then the law of the excluded middle would be valid.

From the actual-world point of view, we should admit the truth of (1) and the falsity of (2). After all, the law of the excluded middle states that for every p, either p or ¬p is true. This should be explained by the fact that every {A, C}-world (*w*1) is closer to the actual world than any {A, ¬C}-world (*w*2) is. Nevertheless, there isn't room for either of these worlds. After all, both of them (according to the American view) have to be maximal worlds, and what (1) and (2) require is that these worlds are incomplete. Because of this, neither *w*1 nor *w*2 satisfy the condition indicated in the (CF*). As such, both (1) and (2) should be considered false. Since they are false regardless of their consequents, they are vacuously false.

According to the alternative Australian view, impossible worlds are sets of sentences that are subject to the relation of consequence known from non-classical logic. Hence these worlds might be taken to be sets of sentences that are ruled by, e.g., paraconsistent or intuitionistic logic. One advantage of this approach is that we can represent worlds that correspond to (1). On the Australian view, such worlds are just sets of sentences that are subject to the relation of consequence known from intuitionistic logic. Hence they are a consistent and incomplete set of sentences that are ruled by intuitionistic logic.

While the American view leads to vacuous falsity of some counterpossibles, the problem with the Australian approach is that it results in vacuous truth of some others. This is due to the fact that, if every worlds of non-classical logic is closed under the relation of consequence of a given logic, then every {A}-world is a {C}-world as well. As such none of {A}-world would be {¬C}-world. In other words, Australian view excludes worlds such as *w*2. This makes (1) not merely true but *vacuously* true. Contrary to this (1) seems to be non-vacuously true.

While discussing the issues mentioned above, I would like to sketch out the third, alternative view, which may be considered to be a hybrid of the mentioned two. For those who sympathize with the geographic terminology it can be labeled "Pacific". After all, it proposes "to connect" the Australian and American views.

The Pacific view is based on the (inspired by works of neo-Meinongians) characterization postulate, which states that for every set of propositions, there is a world that corresponds to this set. Some of them are merely arbitrary sets of propositions, while others are sets of propositions that are closed under the rule of deduction known from a given logic. I will argue that the Pacific view does not only allows to include both *w*1 and *w*2 in the domain of worlds (which allows to consider (1) to be non-vacuously true), but it also enables us to understand the puzzling notion of similarity between the actual and non-actual worlds.

References:

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