

# Counterfactuals and Contingently Existing Propositions

Peter Fritz

University of Oxford  
`peter.fritz@philosophy.ox.ac.uk`

Two of the most influential semantics of counterfactuals are couched in terms of possible worlds: the selection function semantics of Stalnaker (1968), and the ordering (or system of spheres) semantics of Lewis (1973), which can be seen as a generalization of Stalnaker's semantics. Robert Stalnaker has recently (Stalnaker, 2012) defended the claim that the existence of propositions and possible worlds is a contingent matter. His main motivation is the idea that singular propositions may existentially depend on the individuals they involve; e.g., that the proposition that I am human would not have existed had I not existed. The aim of this paper is to consider the implication of Stalnaker's theory of the contingent existence of propositions and possible worlds for Lewis's and Stalnaker's semantics of counterfactuals.

I start by outlining Stalnaker's theory of contingently existing propositions, in particular the parts that can be captured using formal model-theoretic methods. Stalnaker suggests to model the contingent existence of propositions using a set of points, and by associating each point with a field of sets on the set of points. For any point, the elements of the associated field of sets are understood as the propositions which exist at that point, and the atoms of this field of sets are understood as the possible worlds at that point. In Appendix A of Stalnaker (2012), he presents two coherence constraints on such models, and claims that they are equivalent. I briefly show that this is incorrect, and demonstrate how the equivalence can be established by strengthening one of the constraints in a philosophically well-motivated way. As I show elsewhere, the resulting model theory encodes an attractive theory of the contingent existence of propositions; in fact, it is equivalent to the propositional fragment of a version of Kit Fine's general theory of the contingent existence of higher-order entities in Fine (1977).

Applying Lewis's and Stalnaker's semantics for counterfactuals to Stalnaker's models of the contingent existence of propositions is straightforward: With every point, we associate an ordering of the worlds at that point (for Lewis's semantics) or a selection function on the worlds at that point (for Stalnaker's semantics). We can likewise adapt standard constraints on Lewis's semantics such as the limit assumption and Stalnaker's assumption, and extend Lewis's result that with Stalnaker's assumption, his semantics is equivalent to Stalnaker's semantics to the setting of contingently existing propositions. The remainder of the paper is devoted to showing that combining Stalnaker's models of the contingent existence of propositions with Lewis's semantics for counterfactuals leaves both components essentially unaffected, while combining Stalnaker's models of the

contingent existence of propositions with his own semantics for counterfactuals affects both his theory of contingently existing propositions as well as his theory of counterfactuals.

First, I consider the model-theoretic implications of the proposed combinations. There is a natural way of extending Stalnaker's coherence conditions on models of contingently existing propositions to their expansions by ordering functions or selection functions. I show that we can extend every one of Stalnaker's coherent models of the contingent existence of propositions by an ordering function to produce a coherent model, but that the analogous claim is not true for selection functions. Thus adopting Stalnaker's semantics for counterfactuals requires us to strengthen Stalnaker's coherence constraint on the contingent existence of propositions.

Second, I consider the logical implications of the proposed combinations. In the context of contingently existing propositions, it turns out that there are three different ways of understanding the validity of a propositional formula. I show that nonetheless, nothing changes logically if we combine Lewis's semantics of counterfactuals with Stalnaker's models of contingently existing propositions: on each of the three notions of validity, the logic of coherent models of contingently existing propositions with an ordering function is the same as the logic of Lewis's original semantics. This is not the case for Stalnaker's selection function semantics: on each of the three notions of validity, the logic of coherent models of contingently existing propositions with a selection function is weaker than the logic of Stalnaker's original semantics, although they are all at least as strong as the logic of Lewis's original semantics with the assumptions of strong centering and the limit assumption. Since the principle of conditional excluded middle – which holds on Stalnaker's but not Lewis's original semantics – is a focal point in the debate between the two systems, I consider this in particular. It turns out that on two of the three notions of validity, the principle does not hold in the combination of Stalnaker's semantics for counterfactuals with his theory of contingently existing propositions. On the remaining notion of validity, conditional excluded middle is valid in this semantics, but in contrast to Stalnaker's original semantics, its necessitation is invalid.

## References

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