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COUNTERFACTUALS AND SEMANTIC TABLEAUX

Abstract. The purpose of this paper is to develop a class of semantic tableau systems for some counterfactual logics. All in all I will discuss 1024 systems. Possible world semantics is used to interpret our formal languages. Soundness results are obtained for every tableau system and completeness results for a large subclass of these.

Keywords: Counterfactuals, subjunctive conditionals, conditional logic, modal logic, semantic tableau, analytic tableau, Robert Stalnaker, David Lewis, Melvin Fitting, Graham Priest.

1. Introduction

Conditionals and counterfactuals turn up all the time in philosophy and in every day life. Consider, for instance, the following sentences: ‘If I were a brain in a vat, most of my beliefs about my environment would be wrong’, ‘If I were a cartesian soul, my mind might exist without my body’ and ‘If hedonism were true, virtue would not have intrinsic value’. If this is true, we ought to be able to analyze and reason with such sentences. Conditional logic or counterfactual logic is a part of logic that deals with conditional sentences such as these. Pioneering contributions to this branch of logic can be found in Robert Stalnaker’s [26] and David Lewis’s [19]. (For a philosophical introduction to conditionals and more references, see [2].) Philosophers and logicians often introduce certain counterfactual operators to help symbolize, at least certain, conditional sentences. The purpose of this essay is