

## V

# Conclusions

From the definitions of Lewis [1] for the counterfactual logic, we define our natural deduction system, which is proven to be sound and complete for the  $\mathbf{V}$ -logic.

The use of two types of labels (neighbourhood and world labels) gave us the ability to manage different types of quantifications. The quantifications are largely used by the counterfactual operators definitions according to Lewis. That approach makes it possible to build the rules for the counterfactual operators as derived rules of the system.

Another advantage of that approach is that our natural deduction system is built without the use of modalities or strict conditionals, making it easier to take benefits from the well known propositional results such as normalization.

The intuitionistic approach have shown the necessity to introduce a representation of the relation of total order among neighbourhoods. And the total order is a core concept in Lewis work for counterfactual logic and deontic logic because of the role of the nesting function in his arguments. The possibility of expressing the total order in  $iPUC^V$  may contribute to a deeper comprehension of Lewis arguments.