INTRODUCTION

By a well-known theorem of A. Lindenbaum we know that every consistent set of sentences can be extended to a complete and consistent theory, and Tarski has shown further that under some conditions it can be extended to only one complete and consistent extension. In this thesis we study the structure of the set of all subtheories of a theory, which have this theory as their only complete and consistent extension, by partially ordering this set under set-inclusion.

In Chapter I we give the materials about the sentential logic, define sentences, present rules of inference, define consistent set of sentences, define a set of sentences to be complete with respect to another set of sentences and define a set of sentences to be complete. At the end of this chapter we state and prove Lindenbaum's Theorem and state Tarski's Theorem.

In Chapter II we give example 1 of a sentential logic, the Sentential Calculus (SC). We present the axioms and prove that SC is a consistent and complete theory by using the theory of Boolean Algebra and we show that SC has subtheories which have only SC as their complete and consistent extension.

In Chapter III we give example 2 of a sentential logic, the Implicational Calculus (I) which is a partial theory of the Sentential Calculus. We present the axioms and prove that I is consistent and state that I is complete. Similarly to Chapter II we show that I has subtheoreis which have only I as their complete and consistent extension.

In the last Chapter we define a subtheory of a theory which has this theory as its only complete and consistent extension to be a kernel of this theory, and define a core to be the smallest kernel of this theory. We give examples of kernels of complete and consistent theories SC and I. We also show that the set of all kernels of a complete and consistent theory is an upper semilattice under set-inclusion and it is not necessary a totally ordered set, and we discuss questions of maximality and degrees of completeness. The method of independence proofs used in this chapter is explained in Appendix B.