Semantic Syntax is a syntactic model that maps semantic analyses of sentences onto syntactic surface structures by means of transformational rules. It can be considered a lone offspring of the Generative Semantics tradition. This thesis represents a formal evaluation of Semantic Syntax. It investigates the model's descriptive and crosslinguistic adequacy. The methodology applied is that of technolinguistics, the branch of computational linguistics concerned with implementing linguistic models. In this work, an implementation is derived from the existing formalization in order to tackle the descriptive question. The crosslinguistic question is approached by means of separating formalization and theory more strictly.

The implementation arrived at is a sentence generator for English, Dutch and German. In fact, what is implemented is a general grammar, from which the three language-specific generators are derived automatically by means of parameters. The general grammar and derived generators are described in great detail. Besides this generative implementation, it is also investigated how a parser could be implemented. Without going into the same amount of detail as achieved with the generators, it is shown that it is possible to invert the generative process into an analyzing process, without giving up the transformational character.

Although this study does not aim at a technological instrument, it is of interest to natural language processing researchers who may be able to develop the generators and parser into technological tools. The work is also of interest to theoretical syntacticians and to comparative linguists working on Germanic languages.