

Ambiguity in Stochastic Context-Free Grammars (SCFGs) is generally considered an undesirable property. This is due to the fact that many of the algorithms involved in SCFGs give suboptimal results if the SCFG is ambiguous, which has been widely demonstrated from a theoretical point of view. However, a number of ambiguous SCFGs have been found which are not so badly affected by the ambiguity; the suboptimal results are still reasonable. The aim of the project is to investigate this relationship.

In particular the project has three points of investigation. Firstly, whilst ambiguity is a binary property, it is clear it does not affect all SCFGs in the same way. It is therefore worth establishing measures of grammar ambiguity and investigating their effects on RNA secondary structure prediction. The second aim considers measures for the difference in prediction between most probable and maximum probable. This could be extended to another measure on ambiguity. Lastly, several methods have been examined with normal forms and ambiguity reduction, and these should be examined with relation to the above measures.