7. Conclusion

The present chapter explains the outcome of the research carried out to develop the Transfer module to translate the Tamil Inflectional properties into English equivalences.

7.1. In chapter two, a brief review of the research and development in the field of Machine Translation all over the world is given. The various approaches evolved in this MT research and the different models adopted in the development of Real-time MT systems have been briefed.

7.2. In chapter three, a thorough study of Inflectional morphology has been done. The difference between inflection and derivation is explained. Various inflectional categories and their properties (morpho-syntactic properties) are explained in detail. The difference between inherent inflection and contextual inflection is explained with suitable examples from Tamil and English. The nature of derivational affixes and the inflectional affixes is described and why the derivational affixes are very close to the root or stem than the inflectional affixes is explained. Even among the inflectional suffixes, some of them such as Voice, Aspectual and Tense are closer to the root or stem than the inflectional suffixes such as Modal, Person-Number- Gender suffixes. This is explained with suitable examples in this chapter.
7.3. In chapter four, Tamil Inflectional system is thoroughly studied. The parts of speech (POS) in modern Tamil are explained. A detailed study on the various inflectional categories and their properties existing in modern written Tamil is made. Variable lexemes in modern Tamil and their behavior are explained in detail with suitable examples. The morphotactics of Tamil is explained from the angle of morphological parsing.

7.4. In chapter five, the morphosyntactic properties of English are explained in detail. How the Tamil inflectional properties are exhibited in English is studied. Some of the inflectional properties exhibited by suffixes in Tamil are expressed in English not by suffixes, but by grammatical or functional words as well as by syntactic structures. English equivalences for all the Tamil inflectional properties are given here. This is the basis for developing Transfer module which is proposed in the next chapter.

7.5. In chapter six, based on the rules to translate Tamil inflectional properties into English equivalences, the Transfer module is designed and developed. The flow chart for the various processes involved in this module is given. How an inflected wordform undergoes various intermediate processes to get the English equivalence is shown. Screen shots of the end result of this application program have been attached here.
The program is developed in .NET platform, through C# language. The following tools have been developed:

1. Tamil Tokenizer
2. Tamil Morphological Parser
3. Tamil Word-Class Tagger
4. Transfer program for the translation of inflectional properties of Tamil to English Equivalences.

7.6. Contribution to Research

The present detailed study of Tamil inflectional morphology is much useful for further Tamil linguistic research.

Also it would throw light on how the morpho-syntactic properties of Inflectional languages (like Tamil) could be compared with the morphological and syntactical properties of non-inflectional languages (like English).

7.7. Contribution to Language Technology

7.7.1. This Transfer module consisting of various sub-modules would be much useful for the development of Rule-based Machine Translation for Tamil to English. This could be accommodated within the total MT system for the above purpose.

7.7.2. The three sub-modules in-built in the program – Tokenizer, Parser and Word-Class Tagger could be used for other Language Technology applications such as Spell checker, Sandhi checker, etc.
7.7.3. Since the output of the Tamil morphological parser and word-class tagger are necessary for further syntactic analysis, this work would be much useful in the study of Tamil computational linguistics.

7.7.4. The above comparative and contrastive study of Tamil and English would be much useful in ICT (Information and Communication Technology) method of Tamil and English Language Teaching/Learning.