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ABSTRACT:

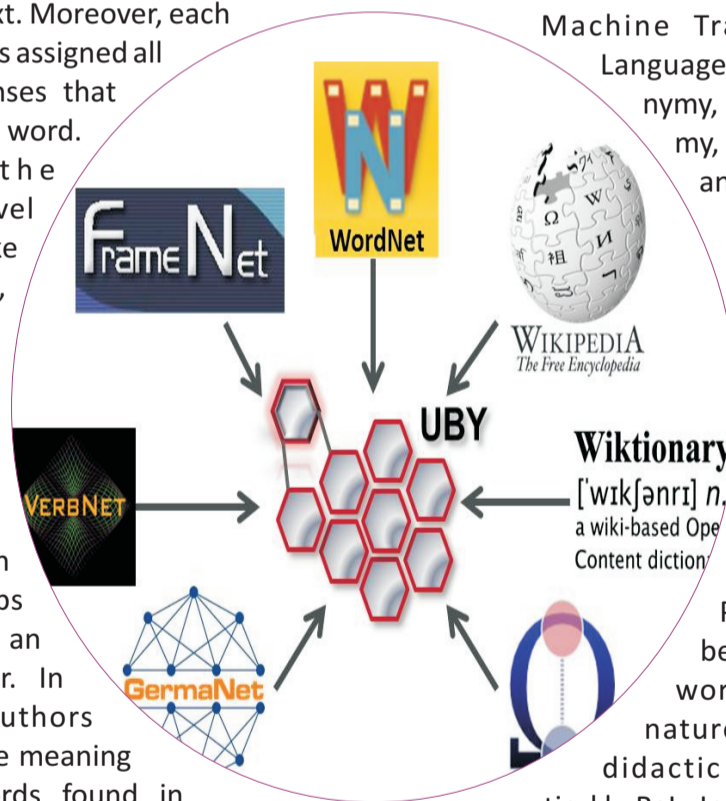
A wordnet refers to an electronic lexical network for any kind of a natural language. It is an electronic tool as well as online lexical resources which enhances the performance of machine translation systems. The machine translation system having Tamil as a Source Language (SL) can effectively exploit the grammatical and sense relations to resolve the ambiguities in the text. Moreover, each word in the network is assigned all possible sets of senses that associated with the word. Furthermore, the different word level sense relations like synonymy, antonymy, hypernymy, hyponymy, meronymy and holonymy are included by networking for capturing the functions of the words based on various relationships among the words in an appropriate manner. In this paper the authors intend to capture the meaning of the content words found in tirukkuRaL. It includes the grammatical category of the words and sense relations between them. The wordnet is built by using a database as a back-end, and a front-end user



M. Mahesh

interface to view the relationships and senses with appropriate concepts. It will be very useful for Tamil learners, Tamil Teachers, Researchers who work in the field of Linguistics and Applied Linguistics in particular Language Teaching, Lexicography, Machine Translation(MT) and Natural Language Processing(NLP).

KEY WORDS: Wordnet, Lexicography, Machine Translation, Natural Language Processing synonymy, antonymy, hypernymy, hyponymy, meronymy and holonymy



INTRODUCTION

The tirukkuRaL as the pride of the Tamil society is a Tamil classic work that consists of a full of commandment of ethical and human behaviour. Perhaps, it can proudly be stated that no other work of non-religious nature can replace the didactic literature named tirukkuRaL. In the range of subject-matter and brevity of the couplets, tirukkuRaL excels the other didactic literature of the World. Thus, this paper highly concentrates on the words

found in tirukkuRaL for analyzing semantically to identify polysemy, and homonymy that comes under the term of multiple meaning, based on data base approach which is very essential for building wordnet for tirukkuRaL. This wordnet is a lexical database for tirukkuRaL. It consists of group of words found in tirukkuRaL into sets of synonyms known as synsets. The synsets can be interpreted as specialization relations between conceptual categories. It contains a simple short general linguistic information that includes various semantic relation between the synonym sets. It seems to be a combination of electronic dictionary and a thesaurus which will be more intuitively usable. And also it will support automatic text analysis, artificial intelligence applications.

The Aim:

The main aim of the paper is to analyze the multiple meanings of words and their lexical relations found in tirukkuRaL for developing a wordnet.

OBJECTIVES:

- To develop a system that would be consistent with the knowledge acquired over the years about human beings process the language in particular tirukkuRaL in Classical Tamil.
- To create a condition that seems to selectively encumber individuals' ability to learn and understand lexical words found in tirukkuRaL this makes the decision to partition the parts of speech into distinct hierarchies more of a principled decision than an arbitrary one.

METHODOLOGY:

a. Collection of Lexical words:

About 480 lexical items were collected from the primary source book entitled tiravukoL written by Mangaiyarkarasi, G. (2006). The collected lexical items belong to the grammatical category of noun, verb, and adjective which were assigned to different grammatical category, syntactic function and lexical relations.

b. Analysis of Lexical Items:

The collected lexical items were analyzed semantically for identifying their grammatical category, syntactic function and lexical relations. According to their grammatical category, syntactic function and lexical relations, they were grouped for creating synonym sets. All possible linguistic information required for developing a wordnet were assigned with each word.

c. Creation of Database:

After completion of the analysis part, the database has been created for depicting lexical items, lexical relations, synsets, meanings and their occurrences.

d. Methods Adopted:

The method for wordnet created at the Cognitive Science Laboratory under the direction of the late psychology professor George A. Miller has been adopted.

MULTIPLE MEANINGS:

Linguistics has many branches like phonetics, phonology, morphology, syntax and semantics. Among them, Semantics is very interesting field which studies the meaning of both lexical and grammatical words. The researchers who work in the field of semantics have not agreed themselves or

at least no impressively strong concord of views about the nature of the lexical meanings. They have been inclined to interpret it in more or less psychological words with that assumption, there are mental processes involved in various contexts. Most of the linguists may themselves, conceive of meanings rather than as a property of the linguistic terms, as their ability refer to something or their capability of something standing for something else; most of the linguists see in lexical meaning only the regularity with which words are used to represent the meaning. Still a few of them think that words themselves have no meaning apart from the context in which they are used. The multiple meanings are divided into two categories: (i) polysemy (ie. single word having a number of related or similar meanings), and (ii) homonymy(ie. the case in which different meanings are not similar or not relatable) stated by Zgusta (1971).

From the perspectives of the traditional grammarians, lexical items are the basic unit of meaning. One has implicitly followed the way of looking at meaning, asking what the meanings of individual words are and then how they are associated with the meanings of complex phrases. There are some reasons to believe, though, that there are important language components of meanings which are assembled below the level of the word. It has been coined the term 'sub-atomic semantics' to describe these aspects of meaning.

According to Nida, E.A. (1975) The speakers can find the homonymy the way in which they understand and interpret the meaning of the identical linguistic units. If the speakers are unable to conceive different meanings or senses as they connected, the words are as pairs of homonymous words and as pairs of homonyms. Generally the Lexical meaning is conceived as the relation between word form and denotata and designatum. It is especially designatum consisting of the criteria or contrastive features of the denotata leaving out the non-criteria or non-contrastive features. But in the languages, it does not exist as a relation between one word form and one designatum. There are two types of relations found in the languages. They are:

- (i) A word is related to multiple meanings.
- (ii) Words are related to same meaning.

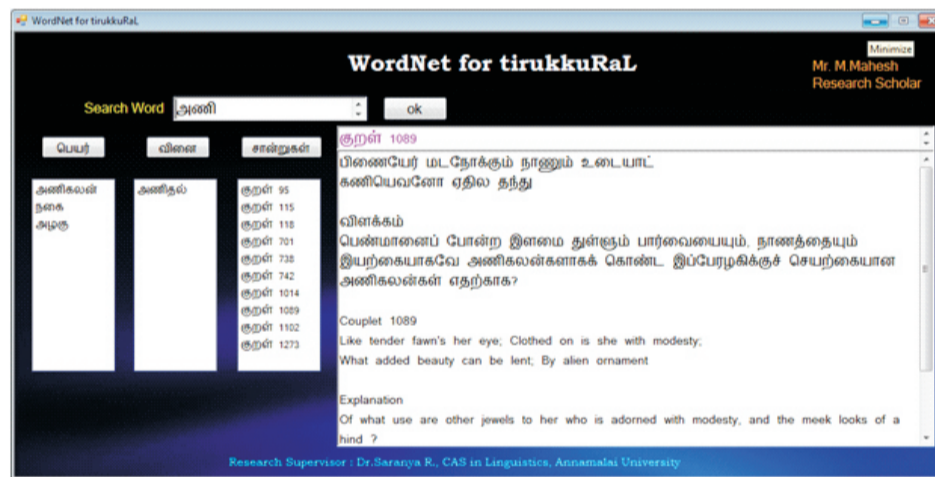
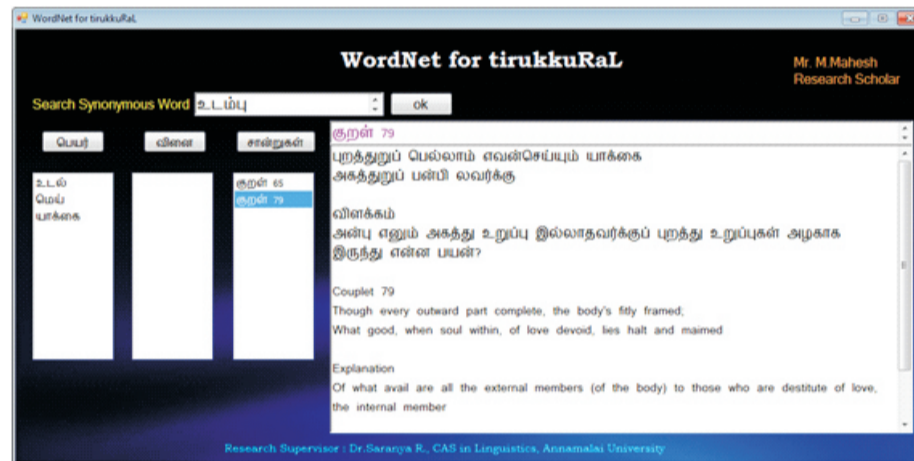
The first category is referred to as multiple meaning and the second is synonymy. The terms homonymy and polysemy are come under the heading of multiple meanings. Many lexical items are used to function differently with different meanings. A lexeme is a conjunction of form and meaning. The form is fairly easy to determine: in writing it is a sequence of letters, in speech a sequence of phonemes. But meaning is more difficult to determine. The term like uram (kuRaL:888) for the meaning of 'strength' 'knowledge' and uram (kuRaL:600) 'firmness'; ulakam (kuRaL:247) for the meaning of 'world' and ulakam (kuRaL:117, 140) for the meaning of 'good people,' pronunciation and spelling are identical but meanings are different. Lexicographers and semanticists sometimes have to decide whether a form with a wide range of meanings is an instance of polysemy or of homonymy. A polysemous lexeme has several (apparently) related meanings. Thus, the word uran (kuRaL:24) for the meaning of 'knowledge' and uran (kuRaL:1263) for the meaning of success.

Dictionaries distinguish the polysemous and homonymous words by making a polysemous item a single dictionary entry and making homophonous lexemes two or more separate entries. Thus uran is a single entry and uran is entered twice. Dictionary producers often make a decision in this regard on the basis of etymology, which is not necessarily relevant, and in fact separate entries are necessary in some instances when two lexemes have a common origin. The form makkaL, for example, has two different senses, 'children' and 'people'. Historically these have a common origin but at present they

WORDNET FOR TIRUKKURAL: A PRELIMINARY ATTEMPT

are semantically unrelated. Similarly, kaalai (kuRaL:1225,1227) and muRpakal (kuRaL:319) were originally 'the same word', but the meanings are now far apart and all dictionaries treat them as homonyms, with separate listing. The distinction between homonymy and polysemy is not an easy one to make. Two lexemes are either identical in form or not, but relatedness of meaning is not a matter of yes or no; it is a matter of more or less. Thus, the study of meanings is very crucial for developing wordnet.

Above all information oriented with meanings are instructed to computer by programming language VB.Net for accomplishing the task as wordnet for tirukkuRaL. The sample visual screen shots are given below.



CONCLUSION:

It is a preliminary attempt that leads to enhance the performance of machine translation systems to the higher level. The machine translation system can have lexical items found in tirukkuRaL as lexical resources. It can effectively exploit the grammatical and sense relations to resolve the ambiguities in the text of tirukkuRaL. Moreover, there is no adequate theory to organize the lexical memory that may ignore the formal relations between the columns or the semantic relations between the rows of the lexical matrix. Lexical relations must therefore, be included in any electronic system that hopes to simulate the human memory structure. The vocabulary lexical may merely be skeleton; it must be fleshed out with many formal and conceptual relations.

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