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## **Problems of Translating Cultural Codes in Computational Linguistics**

**Dr Kavitha N**

Assistant Professor in English  
All Saints' College, Trivandrum  
University of Kerala, India

### **Abstract**

Discourse on the computational linguistics and translation software underlies one of the major interdisciplinary research areas in translation studies. The limitations of translation software with linguistic theory and with languages, especially culturemes reveal both positive and negative aspects. On the positive side there is much to be learned from Interlingua phrases as opposed to transfer approaches. Similarly, the commercial language technology can strengthen the diversity of selected languages and cultures, rather than necessarily impose just one international *Lingua Franca*. On the negative side the trials for localising culture is the loss of linearity in text and originality, which in turn leads to an unreal transcreation of the text. Localizing culturemes is understood as a general mode of thought informing cross cultural text adaptation in the fields of software, product documentation, web technology and computational linguistics. Specialized software for translation is used by translators to speed up the translation process. This in turn leads to another negative aspect, that they restrict the role of translation to mechanical replacement, resulting in the financial priority over the appropriate use of language or transcreation/ translation. These issues can only be addressed once the cultureme is identified and understood and a medium is found to transfer the 'real' behind the phraseologies to folklores.

**Keywords-** *Transcreation, Adaptation, Culture, Translation, Linguistics*

### **Introduction**

Translation of Cultural codes in computational linguistics and the use of translation software underlies one of the major interdisciplinary area of study in translation studies. Computational linguistics might be considered as a synonym of automatic processing of natural language, since the main task of computational linguistics is just the construction of computer programs to process words and texts in natural language. It is often grouped within the field of artificial intelligence, which is developing algorithms and software for intelligently processing language data. Speech recognition software, spell check tools, speech

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synthesis programme google translate and word reference are a few examples. Computational linguistics and machine translation have gone beyond the traditional level parameters of translation and have increasingly focused attention on text constraints and variations in intercultural transfer. It is in such a context that the problem of cultural units in translation has begun to be dealt with in the socio- cultural dimension of translation, such as the translation of culturemes. The term ‘cultureme’ has been created starting from the well-known template of the traditional linguistic units phoneme, morpheme or any other linguistic unit and represents a concept that bridges language and socio- cultural context. Lotman’s theory state that “...no language can exist unless it is steeped in the context of culture; and no culture can exist which does not have at its center, the structure of natural language” (13-14).

The issue of the transference of the ideas as well as the interaction between translation and culturemes occupies nowadays a particular place in translation- based thinking. The emergence of the cultural dimension of the translation phenomenon contributes to the radical renewal of the translation speech and in recent decades led scholars to redefine the very nature of the translation phenomenon (cf. Basnett & Lefevere 1990, Toury 1995). Thus, translation is not considered as a simple business of words or structures but rather as a human activity combining social, historical and political factors. In addition, the translated text is viewed as the result of a society’s behaviour and ideological orientation: in other words, the translation phenomenon, apart from being a creative and intellectual process, is also a human activity which is subject to conventions, which are finally reflected in the target text. But when commercial translation technologies developed with the development of translation softwares, translation has purely transformed into a profit motive business. The role of machine translation and computational linguistics arena is questionable in that context.

## **Basic Functions of the ‘cultural code’**

Analytical emphasis develops further upon the vision of “cultural code” functioning, upon how cultural unity in the society is reached in the historical and geographical spaces. Cultural code, here represents unity of norms, customs and morals. That would also require specification of these parameters. Tracing general history development one can see how customs and rituals are replaced by norms of law and creation of art, how institutions of education and upbringing are formed. But in this trend it is important to note, that changes like this are imposed in modification of cultural code, while basic cultural code functions should stay the same in its basis. Otherwise a society may break apart or even extinct. Such functions of cultural code would allow a society to persist over a long historical period and enter the new century as an ethnical unity that has reached a level of a large social formation. Most probable functions may be viewed as: i) Cultural code as a form of cultural broad cast, ii) Cultural code as a way of socialization of individual. Even though the success of modern software for natural language processing impresses our imagination, these cultural codes cannot be translated with accuracy by human intelligence or machine translation.

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Software programs for orthography and grammar correction, information retrieval from document databases and translation from one natural language into another, among others, are sold worldwide in millions of copies these days. However, we have to admit that such programs still lack real intelligence. The ambitious goal of creating software for deep language understanding and production, which would provide tools powerful enough for fully adequate automatic translation and man- machine communication in unrestricted natural language, has not yet been achieved, though attempts to solve this problem already have a history of nearly fifty years. This suggests that in order to solve the problem, developers of new software will need to use the methods and results of a fundamental science, in this case linguistics, rather than the tactics of temporary solutions. Neither increasing the speed of computers, nor refinement of programming tools, nor further development of numerous systems for language understanding in tiny domains, will suffice to solve one of the most challenging problems of modern science; automatic text understanding.

Language is structured at multiple levels, beginning in the case of spoken language with patterns in the acoustic signal that can be mapped to the distinguishable successive sounds of which languages are built up. Sounds that are equivalent for a given language will not affecting the words recognized or understood by a hearer, if interchanged are the *phonemes* of the language. The phonemes in turn are the constituents of *morphemes*, minimal meaningful word segments, and these provide the constituents of words. In written language one speaks instead of characters, graphemes, syllables, and words. Words are grouped into *phrases*, such as noun phrases, verb phrases, adjective phrases and prepositional phrases, which are the structural components of sentences, expressing complete thoughts. At still higher levels we have various types of discourse structure, though this is generally looser than lower-level structure. Techniques have been developed for language analysis at all of these structural levels, though space limitations will not permit a serious discussion of methods used below the word level.

This approach would consider a need for empirical examples of contemporary cultural codes, with emphasis on dynamics in development of cultural code, revealing social mechanisms of knowledge broadcasting and individual entrance into the society. These cultural codes can be also interpreted as a reality above individual, read by cultural studies experts in the process of analysing socialization or as a reality of nominalism. But above all main difference of approaches is revealed in understanding culture as activity, technology of recreation and creation of human society, spiritual code of human life activity, adaptation and self-determination of individual.

## **Computational Linguistics and problem with machine translation**

Computers are very general symbol manipulation machines. Symbols are made up of zeroes and ones they can represent numbers but also more complex objects like words, sentences, syntactic trees etc. Computers represent linguistic objects in non-linguistic ways.

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Concurrent understanding is oriented on values, taking culture as a complex hierarchy of meanings and ideals. “The evaluation of translations has its problems, but in principle it can be objective, e.g. by observing whether the users of a manual produced by MT can understand and carry out instructions as well as users of versions of the manual produced by human translators” (Sinaiko & Klare 1972). Although interpretations may vary, but activity and value approaches have also something in common. And that is in researching culture in a sphere of symbolics, where symbol reflects means of values realisation and cultural meanings, which are coded. Symbols are also usually most accessible for research. In order to sustain the line of social sciences, “cultural code” concept would develop presumably as a collective definition. This would mainstream with sociological institutionalism and confront rational choice theory. Although a single person, may be a carrier of a cultural code and may actively participate in code development, but still a basic assumption prevails: that culture as well as language in the form of symbolic form of communication is a social phenomenon. In other words, cultural code is something mutual to some group of people, people who live simultaneously and are bonded with specific social organisation. Translations remain error-prone, but their quality is usually sufficient for readers to grasp the general drift of the source contents. Also, computer applications on hand-held devices, designed to aid international travellers, can be sufficiently accurate for limited purposes such as asking directions or emergency help, interacting with transportation personnel, or making purchases or reservations, When high-quality translations are required, automatic methods can be used as an aid to human translators, but subtle issues may still absorb a large portion of a translator's time especially in conveying the actual meaning of cultural codes.

This also means that cultural code is a form of communication between people and is possible only in a group, where people communicate with each other. Any structure, which is in service of social communication, can be called as a language. In other words, it is a defined system of signs, which is used in accordance to regulations and is known to the members of a specific collective group. Signs may be used as reflecting any material expression which has a meaning, and in this way may serve as means of transferring sense. Alongside with signs, it is important to reflect more on symbols as preservation of experience. Culture is memory and hence cultural code has a link to history, where it is meant as continuity of moral, intellectual, spiritual life of an individual, society and humanity. Through globalisation tendency is to create a universal cultural code. Shifting the meaning of cultural codes to digital language is our challenge.

The goal of theoretical linguistics is to find simplest theory of grammar that can account for our knowledge of language, and to explain the innate mechanisms that allow people to learn and use human language. They are concerned with language universals and they focus mainly on grammatical competence. Some particular linguistic theories also take as a fundamental goal to explain language use in ways which are psychologically plausible.

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The goal of computational linguists is to write programs that can handle as much natural language as possible.

These computer programs are good but appropriate solutions; they cannot deal with all sentences of a natural language, although they deal with the most common and interesting constructions. This fact, which is generally accepted by computational linguists, would be unacceptable for theoretical linguistics, since it is part of their goal to account for all grammatical sentences of a language with their theory of grammar. In computational linguistics, the process of syntactic analysis is called “parsing”. Providing a syntactic analysis of a sentence is equivalent to finding out whether that sentence belongs to the set of possible sentences of a language, and if it so, giving a representation of its structure, for instance in the form of a syntactic tree or a bracketed sentences with labels as subscripts.

The dividing line between semantic interpretation i.e., computing and disambiguating logical forms and discourse understanding- making sense of text, here culturemes is a rather arbitrary one. As Sapir claims, “no two languages are ever sufficiently similar to be considered as representing the same social reality” (Sapir, 1956). However, heavily context and knowledge dependent aspects of the understanding process, such as resolving anaphora, interpreting context dependent nominal compounds, filling in missing material, determining implicit temporal and casual relationships among other coherence relations, interpreting loose or figurative language and certainly, integrating linguistically derived information with pre-existing knowledge are generally counted as aspects of discourse processing.

## Conclusion

Computational linguistics deals with the statistical or rule-based modelling of natural language from a computational perspective. The limitations of translation software with linguistics theory and with languages, especially culturemes reveal both positive and negative aspects. On the positive side there is much to be learned from Interlingua phrases as opposed to transfer approaches. Similarly, the commercial language technology can strengthen the diversity of selected languages and cultures, rather than necessarily impose just one international Lingua Franca. On the negative side the trials for localising culture is the loss of linearity in text and originality, which in turn leads to an unreal transcreation of the text. Localizing culturemes is understood as a general mode of thought informing cross cultural text adaptation in the fields of software, product documentation, web technology and computational linguistics. Specialized software for translation is used by translators to speed up the translation process. This in turn leads to another negative aspect, that they restrict the role of translation to mechanical replacement, resulting in the financial priority over the appropriate use of language or transcreation/ translation. These issues can only be addressed once the cultureme is identified and understood and a medium is found to transfer the real behind the phraseologies to folklores.

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