Translation of Neologisms in Fishery-Engineering based on Kurki's (2012) Framework: A Strategy-Based Analysis

Mohammad Reza Falahati Qadimi Fumani
(Corresponding Author)
Department of Computational Linguistics
Regional Information Center for Science and Technology, Shiraz, **Iran**
Sedigheh Abdollahpour
Department of Foreign Language, Islamic Azad University, Marvdasht Branch
Marvdasht, **Iran**

ABSTRACT

Neologisms are newly coined lexical units or existing lexical units that acquire a new sense. The primary objective of this study was to determine the strategies used by translators in translation of neologism in fishery-engineering based on Kurki's (2012) model. To conduct the study first, the book "Carp and Pond Fish Culture" by Horvarth, Tamas and Seagrave (2002), along with three of its Persian translations, were selected as the data. Then, 133 neologisms were extracted from the English book. Later, the strategies used by each translator to render the English neologisms into Persian were determined with the help of a co-rater. The list produced was used as the main data source. The data were then input into SPSS (Version 21) for further analysis. The results showed that each translator had used the six strategy types differently; the most frequent strategy was 'Borrowing' while the least frequent strategy was 'Transposition'. There were not any statistically significant differences among the translators in the application of each single strategy used for translation of neologisms, and there were statistically significant differences among the three degrees of inter translator consistency (ITC) in the data of the study (the most frequent degree was 3 which meant that 97 items out of 133 cases were translated by the three translators using the same strategy). The findings of this study were in line with the findings of Sedighi and YazdaniMoghadam (2012). The findings in this study could be used by translators, translation researchers, students of translation, writers, syllabus designers, policy makers, etc.

1. Introduction

The term 'neologism' originated from the Greek word *neos* (new), and *logos* (word). According to Newmark (1988), "neologisms are the non-literary and the professional translator's biggest problem. They are newly coined lexical units or existing lexical units that acquire a new sense" (p. 140). Volden and Lord (1991) referred to the difficulty in finding equivalents for neologisms in common dictionaries and defined the term as "words that are not included in a standard lexicon of adult native language speakers" (p. 110). According to Ming and Varvara (2009, p. 1) neologisms are "words that appear most recently in the process of society development … they best reflect the changes in the society". Rey (1995, p. 312) defined the term as "a lexical unit perceived as recent by language users, which reduces the idea of novelty to a psychological and social factor which is therefore no longer objective and chronological."

Due to the novelty of neologisms, translators quite often face serious challenges while translating them from one language into another. In fact, translating neologisms seems more difficult than other terms and some researchers link this to their two-fold nature, namely 'linguistic' and 'novelty'. According to Rey (1995) the first component implies the search for the meaning of the term while the second
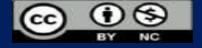
component implies a model of communication. In our everyday communication it may happen that the existing words cannot fulfill our needs, and hence the need for neologisms.

Neologisms are also divided into different types. Rey (1995), for instance, differentiated between 'formal', 'semantic' and 'pragmatic' neologisms. Formal neologism, according to Rey (1995), refers to "using the grammatical rules to the morpheme store of the languages. The presence of proper names among the available bases gives the system an indeterminate scope; e.g. '(anti)maoiste', '(pro)giscardien', etc., were unforeseeable formations" (p. 316). Similarly, "semantic neologism can be total in the system (the case of borrowings), partial (creations by affixation, composition, agglutination into complex words, or syntagmatic formations into word groups) or very weak (the case of acronyms and abbreviations)" (Rey, 1995, pp. 317-318). Finally, pragmatic neologism is specified in relation to communication. According to him, a neologism is a new element which is not related to concrete process of language. Rey (1995) stated when a functional form, an old lexical sign such as a dialect, sociolect, usage or objective norm is transferred to another subsystem and it is understood as neologism.

As is evident in this brief introduction, research on neologism can be of great help to translators. Of course, a brief review of works done on neologisms has been provided in the literature review section of this article, but the gap that exists in the literature is that not much work has been done on specific subject fields like fishery engineering. This field is the engineering that has been applied directly or indirectly to fisheries. That is, fishery engineering is nothing but the engineering that has been applied to fishery activities in general. This covers various specialized fields of engineering such as civil, mechanical, electrical, electronics, computer, chemical engineering etc. In addition, the techniques of naval architect, fishing, seamanship and navigation are among other parts of fishery engineering. It is considered to be one of the major supporting departments in fishing industry (Department of Fisheries Engineering and Technology [DFET], 2014). Due to the problems mentioned above and due to the availability of varying viewpoints on translation of neologism, the present study sought to investigate translation of neologisms in the field of fishery engineering from English into Persian. The broad objective of this research was to determine the strategies used by translators to translate neologisms in fishery engineering based on the model proposed by Kurki (2012).

Based on the above broad objective, three research questions were formulated as briefed below:

1. Does each translator show variations in the application of the six strategy types proposed by Kurki (2012)?
2. Do the translators vary with regard to the application of each single strategy?
3. Are there any statistically significant differences among the three degrees of inter translator consistency (ITC) in the data of the study?

From the above research questions, the following research hypotheses were formulated:

H01: Each translator uses the six strategies of Kurki (2012) invariably.

H02: The translators do not vary with regard to the application of each single strategy.

H03: There are not any statistically significant differences among the three degrees of inter translator consistency (ITC) in the data of the study.

2. Literature Review

2.1 Literature on Neologisms

In this part, studies undertaken in the field, and of course related to the theme of this study, are elaborated on. Volden and Lord (1991) in their article provided language samples from matched groups of 80 autistic, mentally handicapped, and normally developing children. The aim of their study was to investigate the frequency and the presence of neologisms and/or idiosyncratic language use. Results of their study indicated that the autistic groups used words that had no semantic similarity to the English word, so the frequency of idiosyncratic language increased with language complexity, in mentally handicapped group. Such errors decreased as the language skill of the participants increased.

Dasgupta (2004) viewed neologisms as new expressions which are not domesticated. Based on his observations, when a translator faces neologisms, he should consider the basics and organize the overall understanding of the issue of newness. This is a vital issue since a translation should be new to the TL and also be related to old trends in the TL.

Llopis (2005) in his study dealt with identification of some integration patterns of loan words of English origin into the vocabulary of Spanish business legal language. The researcher analyzed the diverse reasons for the integration of neologisms from English. Based on the findings of this study, neologisms were observed to be patterns of linguistic behavior that indicate the economic, social, legal and political development of countries.

By taking several new words included in the 2005 updated version of MWCD11, Ishikawa (2006) quantitatively investigated how these words were used in the attested data. According to Ishikawa, numerous words are added every day to free collaborative online dictionaries such as the "Merriam Webster Online Dictionary" (MWCD). Based on his findings, the data-based analysis suggested that some of the words may not have acquired sufficient legitimacy in neologism to be included in the general dictionaries.

Václavíková (2006) inspected translation of names and new words in Harry Potter. The researcher aimed to investigate the use of various translation procedures in the process of translation of new words and proper names in Harry Potter series in which the number of words and names is extraordinarily large. The researcher based his work on Newmark's (1988) theoretical framework; he divided the terms in groups and then analyzed them.

Cartoni (2008) in his paper considered neologisms in a machine translation system. In his paper, he paid attention to a special matter in Romance languages: relational adjectives and the role they play in prefixation. In his paper, he used special mechanism to consider prefixation. He said that use of relational adjectives leads to improvement of translation quality. Based on his findings, the reason leading to non-translations is lack of the base word in the lexicon, so the only solution to tackle this problem is to find the nominal base.

Schmid (2008) in the study of new words and the early levels of their lexicalization considered the involvement of structural and semantic changes; he also talked about the gradual spread of words in a speech community. Schmid (2008) aimed to provide a background of continuous processes which take place in the minds of language users and hearers while processing coined neologism. In this paper, he considered new words constructed from the existing morphological material. Based on his findings, semantic unclearness is because of a new word creation due to necessity in formation of limited number of aspects of the scene faced for encoding.

Lee (2010) in his study investigated patterns of Korean neologisms influenced by English language. In this study, he divided the neologisms into two levels. At the first level, neologisms appear in both English and Korean languages. At the second level, neologisms are not found in translational instances used in Korean. The researcher put the collected neologisms in two categories namely phonological and morphological. Finally, the researcher analyzed each of these Korean neologisms and compared them with their original meanings.

Zhou Li-na (2016) reviewed the formation of neologisms in news English. The classes covered included abbreviations, compounding, derivations, loan words, analogy and meaning transfer. The author concluded that by learning more about neologisms in news articles language learners will be able to understand news articles better and that "this will increase their cross communication ability" (p. 292). Further Fateh Fanaqtah (2016) in his qualitative research studied the translation problems of military and political neologisms and the strategies used by translators to translate these neologisms. Using Newmark's dual theory the author endeavored to extract different types of neologisms from the dataset of the study. The results revealed that "the most frequently used strategies were functional equivalent, word for word, modulation, paraphrasing and compensation" (p. XII).

Megerdoomian and Hadjarian (2010) studied neologisms in Persian blog posts across five distinct topic areas. In their paper, they described a method for extracting and classifying newly constructed words and borrowings from Persian blog posts. The analysis indicated a correspondence between the topic domain and the type of neologism that was most commonly encountered. The results suggested that based on the domain of application different approaches should be adapted to automatically find and process neologisms.

HasaniYasin and Mustafa (2010) in their article dealt with neologism and their translations which have been found in the English textbook intended for students of Mass Media Departments at some Iraqi universities. These students had some problems in understanding and translation

of the neologisms within their English textbook. According to the results, the translation of neologisms was dependent on the background of each expression. The researcher suggested some solution for the problem of translating neologisms.

Csak (2011) in her paper discussed the development of economic lexicons of German, Russian, and Hungarian economic lexicons with specific regard to neologisms. In this study, the researcher used three hotel trade special language corpora in which each contained more than one million words. The results of this study indicated similarities and differences between scenes of language use.

Jerkus (2011) in his paper considered economic lexicons with specific regard to neologisms. In his paper, he aimed to explain some issues of professional foreign word formation at the lexical-semantic levels, and this could be a help for researchers. Based on his findings, in translation of non-literary texts translators should not create neologisms except for two cases: when the translators have authority and when they write it out of readily understood Graeco-Latin morphemes. But in literary texts they should re-create any neologisms they see.

Kurki (2012) introduced a way to translate neologisms in the Finnish DVD subtitles of the "Stargate SG-1"science fiction television series. In his research, Kurki (2012) categorized different translation techniques used for neologism translation. He hypothesized that during subtitling of a television program, much of the original dialogue was standardized or even omitted, but because neologisms were the main characteristics that set science fiction, they could not be left out or changed, and finally he concluded that neologisms were important aspects of the science fiction genre and subtitlers attempted to translate neologisms as close to the original neologisms as possible.

Zhang, Wu and Zhang (2013) in their study considered translation of internet neologisms from Pound's perspective of language energy. According to this perspective, there is huge electricity and energy between words and word combinations lead to creation of new words. Internet neologisms are semantic variants under network environment, whose emergence are the results of the continuous development and movement of their energy Zhang, Wu, and Zhang (2013, p. 66). Based on their findings translation of methods in

the process of internet neologism creation leads to understanding of the way people think and the general law of people's cognition of the world.

Liu (2014) in his paper considered translation of tech English neologism in the field of petroleum engineering. The researcher aimed to investigate features of petroleum English terminology and presented some appropriate translation strategies. Based on the findings, translators should get good knowledge of petroleum engineering words and its dynamic development in order to achieve appropriate equivalents.

2.2 Research on Neologisms in Iran

Along with researchers from over the globe, Iranian researchers have also undertaken an array of research works on neologism. Sayadi (2011) in her paper studied the ways in which neologisms were created. She believed that in non-literary texts you should not normally create neologisms but in a literary text, it is translator's duty to re-create any neologism he meets, on the basis of the SL neologism. She also listed a number of ways through which neologisms could be translated.

Sedighi and YazdaniMoghadam (2012) believed that through translation of neologism, translators could understand the style of the original author. In their study, they considered the procedures and translational norms used in translation of computer neologisms. Based on findings of their research, they suggested that transference and lexical synonymy were the major translational norms and transference was the major procedure of translation in a specific period of time.

Houshyar and Karimnia (2013) in their study tried to investigate strategies used by Iranian translators to Persian translation of the neologism introduced by IAPLL (Iran's Academy of Persian Language and Literature). In this study, a number of words were selected randomly and the created neologisms of these words were classified based on Newmark's (1988) typology of neologisms. The researchers used Newmark's (1988) model for the translation of neologisms to analyze Persian equivalents. Based on the findings, "literal translation" was the most frequently used strategy and the least frequent one was "borrowing".

Panahi, Shomoosi, Samadi and Mohamadian (2013) believed that translating for children needed special consideration and nature of neologisms in

children's fiction was imaginative, so translating for them was at the center of debates. In their study, they attempted to examine possible correspondence between English neologisms and their equivalents in Persian. They concluded that in the category of *New Collocations*, the highest percentage (35.93%) of formal equivalence (direct correspondence) had been obtained. However, in the category of *New Coinages*, *Blends* and *Derivations*, the six translators had failed to revive the same type of neologism in Persian translation.

Talebinejad, Dastjerdi and Mahmoodi (2012) in their article investigated translations of neologisms in scientific and technical documents. In this article, the researchers randomly selected fifty-five Ph.D students of nine disciplines. Then, nine technical texts were given to the participants. The data analysis was based on Wilcoxon Signed Rank Test and Spearman's Correlation Coefficient. Based on the findings of the study, as the familiarity with IAPLL-coined terms increased, the frequency of use of such terms also increased.

Moghadas and Sharififar (2014) in their article considered the translation of neologism from English source text into Persian. In this article, they used Think-Aloud Protocols (TAPs) model in the process of neologism translation. Based on their findings, the complexity of the process of neologisms translation depended on the translation competence of translators. The researchers also provided a cognitive model for the process of neologisms translation.

Based on this literature review, in this study, the researchers aimed to contribute to the literature by focusing on a specific subject field, fishery engineering, and investigate the strategies used for translation of neologisms based on Kurki's (2012) model.

3. Methodology

3.1 Research Aide

To undertake the present descriptive-comparative study, the researchers sought the help of a number of people as follows:

• One expert with a Ph.D. degree in fishery engineering. This expert helped the researchers to select the English book "Carp and Pond Fish Culture" by Horvarth, Tamas and Seagrave (2002) and its three Persian translations by Khoshkholgh (2006), Mahdinejad and Khara (2003), and MohagheghiTamrin and Hedayatifard (2013) from which the

data of the study – neologisms –were extracted.

• Another expert with a Ph.D. degree in fishery engineering. This expert reviewed the data which was extracted from the book and commented on the items. The data was revised based on the comments issued by this expert.

• An M.A. student in translation studies as the rater. She determined strategy types applied by the translators to translate neologisms. She used the model proposed by Kurki (2012) to code the data.

• Research advisor as co-rater. He checked the data labeling that had been done by the M.A. student and commented on it.

3.2 Data Collection Procedure

Based on purposive sampling and using the viewpoints of experts in fishery engineering, the book entitled, "Carp and Pond Fish Culture" by Horvarth, Tamas and Seagrave (2002) was selected as the main source from which to collect the data on neologisms. This book was selected since it had also been translated into Persian by three translators, so it enabled comparison of the translations. This was deemed important since the researchers wanted to check the application of strategies in translation of neologisms from English into Persian. One precondition for selecting the English neologisms was that Persian equivalents had to be available for them. In all, 133 neologisms were extracted from the English book and listed with their Persian equivalents as the data of the study.

3.3 Procedure of the Study

To undertake the present study, the following steps were taken. First, the book "Carp and Pond Fish Culture" by Horvarth, Tamas and Seagrave (2002) was selected as the data of the study. Three translations of this book by Khoshkholgh (2006), Mahdinejad and Khara (2003), and MohagheghiTamrin and Hedayatifard (2013) were also selected to enable the researchers to implement a comparative study between the English terms and the Persian ones based on the model proposed by Kurki (2012). Then, 133 neologisms were, based on expert views and the purpose the researchers had in mind, extracted from the English book. Those terms were selected for which Persian counterparts were also available in the three translations. Then, the strategies used by each translator to render the English neologisms into Persian were determined with the help of the co-rater. The list produced was used as the main data source
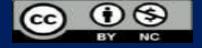
in this study. The data were then input into SPSS (Version 21) for later analysis.

3.4 Theoretical Framework of the Study

Different models of translation of neologisms have already been proposed from which Kurki's (2012) model was selected. This model was used since it concentrated on translation of words and expressions rather than whole sentences. Further, it was new compared to other models. Moreover, the model was enriched with practical examples which made it easy-to-use. Lastly, this model was used since it had also been used by many other researchers – i.e. to study neologisms. This model has the following components:

1) Borrowing: "The source-language neologism has been transferred into the subtitles directly, the only alteration being a possible naturalization process (i.e. adapting the translated word to fit Finnish orthography). Example: 'Harsesis': *harsesis* (p. 39). **2) Calque: "**The SL neologism has been translated into the TL, word for word, e.g. the English-Finish language pair: 'automatic correlative update': *automaattinenkorrelaatiopäivitys*" (p. 39). **3) Synonymy: "**There is only a very slight difference of meaning between the SL neologism and the translation; the translation is almost a calque but not quite, e.g. 'alien psyche': *muukalaismieli*" (p. 39). **4) Generalization: "**The source-language neologism has been translated into something more general in Finnish, e.g. 'cool-down coordinate': *jäähtymispaikka*" (p. 39). **5) Reduction: "**A part of the original has been left out of the translation. Example: 'personal shield': *kilp*" (p. 39). **6) Amplification: "**Something has been added into the translation, e.g. 'rings': *siirtorenkaat*" (p. 39). **7) Discursive Creation:** "The SL neologism has been translated in an unpredictable way and may seem strange out of context, e.g. 'beam technology': *siirtosäde*" (p. 40). **8) Transposition: "**Change of word class or conception. For example, the SL noun has become a target-language verb form, e.g. 'alien encounter': *kohdatamuukalainen*" (p. 40). **9) Omission: "**The source-language neologism has been left out from the translation altogether, e.g. 'Its system log seems to be isolated on a separate crystal from memory control: *Senjärjestelmäloki on eristettynäerilliselläkiteellä*" (p. 39).

3.5 The Issue of Reliability

Inter-rater reliability was used to reduce rater errors while analyzing the data. That is, to label the data two raters participated: The M.A. student and the study advisor. The two raters labeled the data. A comparison of the labels generated revealed a reliability of .74 between the two raters. The items which had been labeled differently were discussed and reviewed once more and the label on which both raters had agreed was used as the ultimate data label.

3.6 Data Analysis Techniques

Both descriptive (frequency tables, percentages, etc.) and inferential statistics (chi-square test, since we deal with nominal data and categorical data) were used to analyze the data based on the model proposed by Kurki's (2012) model. To analyze the data use was made of SPSS (Version 21).

4. The Results and the Discussion

In this section, first some descriptive statistics related to the data of the study will be included. Later, each research question will be repeated and all the results pertaining to each question will be listed.

Table 1. Distribution of strategies used by each translator

Strategy	Trans 1	Trans 2	Trans 3
Generalization	28(21.21%)	28(21.05%)	27(20.29%)
Borrowing	52(39.4%)	53(39.85%)	53(39.85%)
Calque	46(34.85%)	47(35.34%	47(35.34%)
Transposition	1(0.76%)	0(0%)	0(0%)
Amplification	2(1.51%)	2(1.5%)	3(2.26%)
Synonymy	3(2.27%)	3(2.26%)	3(2.26%)
Total	132*(100%)	133(100%)	133(100%)

*. This translator had not translated one term and hence the frequency of 132 rather than 133.

As seen in Table 1 'borrowing' had been used more abundantly by each of the three translators; 'transposition' proved to be the least frequently used strategy with a frequency of 1 – translators 2 & 3 had not used 'transposition' at all. This meant that two translators had used five of the six strategies introduced by Kurki (2012). Finally, 'calque' and 'generalization' were found to rank as the second and the third most frequent strategy types used by each of the three translators.

4.1 Research Question One

To check if the differences observed in the application of strategy types by each translator were statistically significant, the following research question was formulated, "*Does each translator show variations in the application of the six strategy types proposed by Kurki (2012)?*" This question was answered using the chi-square test as depicted in the following tables (Tables 2-5).

Table 2. Chi-square test to check significance of difference in application of strategy types by translator 1

Strategy	Observed N	Expected N	Chi-Square	df	Sig.
Generalization	28	22.0			
Borrowing	52	22.0			
Calque	46	22.0			
Transposition	1	22.0	123.36	5	0.000
Amplification	2	22.0			
Synonymy	3	22.0			
Total	132*				

. There is one missing data and hence 132 rather than 133.

The chi-square test results in Table 2 indicated that the test was significant (Sig. =0.000<0.05). It meant that translator 1 had used the six strategies differently. The observed frequencies were all significantly different from the expected ones. That is, translator 1 had not used the strategy types similarly.

Table 3. Chi-square test to check significance of difference in application of strategy types by translator 2

Strategy	Observed N	Expected N	Chi-Square	df	Sig.
Generalization	28	22.0			
Borrowing	53	22.0			
Calque	47	22.0			
Transposition	0	22.0	85.60	5	0.001
Amplification	2	22.0			
Synonymy	3	22.0			
Total	133				

The chi-square test results in Table 3 revealed that the test was significant (Sig. =0.000<0.05). It meant that the observed frequencies were significantly different, that is, translator 2 had not used the strategy types similarly.

Table 4. Chi-square test to check significance of difference in application of strategy types by translator 3

Strategy	Observed N	Expected N	Chi-Square	df	Sig.
Generalization	27	22.0			
Borrowing	53	22.0			
Calque	47	22.0			
Transposition	0	22.0	83.72	5	0.001
Amplification	3	22.0			
Synonymy	3	22.0			
Total	133				

The chi-square test results in Table 4 indicated that the test was significant (Sig. =0.001<0.05). It meant that the observed frequencies were significantly different, that is, translator 3 had used the strategies differently.

So, based on the findings of the first research question, the hypostudy, "*Each translator uses the six strategies of Kurki (2012) invariably*" could not be held.

4.2 Research Question Two

The second research question of the present study was as follows, "*Do the translators vary with regard to the application of each single strategy?*"

Unlike research question 1, in which the application of strategies by each translator was measured, here the purpose was to compare translators regarding the application of each single strategy.

Table 5. Comparison of translators within each strategy (strategy versus translators)

Strategy	Statistics	Translator 1	Translator 2	Translator 3
Generalization	Freq.	28	28	27
	Percent	33.7	33.7	32.6
Borrowing	Freq.	52	53	53
	Percent	32.9	33.5	33.5
Calque	Freq.	46	47	47
	Percent	32.8	33.6	33.6
Transposition	Freq.	1	0	0
	Percent	100.0	0	0
Amplification	Freq.	2	2	3
	Percent	28.6	28.6	42.8
Synonymy	Freq.	3	3	3
	Percent	33.3	33.3	33.3

In Table 5, frequencies and percentages of strategies as used by each of the three translators have been reflected. Percentages have been computed within each strategy, e. g. the generalization strategy was used 83 times including 28 times (33.7%) by translator 1, 28 times (33.7%) by translator 2 and 27 times (32.6%) by translator 3.

To check the significance of difference among the three translators in the application of strategies used for translation of neologisms, six chi-square tests – in fact five since for transposition there was not enough data – were computed as depicted and summarized in Table 6 below:

Table 6. Chi-square test for comparison of translators within each strategy

Strategy	Chi-Square	Df	Sig.
Generalization	0.024	2	0.988
Borrowing	0.013	2	0.994
Calque	0.014	2	0.993
Transposition	*	*	*
Amplification	0.286	2	0.867
Synonymy	0.000	2	1.000

*There are not enough valid cases for processing. No statistics are computed.

Table 6 presented the chi-square test for comparison of translators within each of the six strategies. As seen in this table, the three translators were not significantly different with regard to application of each of the six strategies (Sig.>0.05). Of course, chi-square test could not be computed for transposition since this strategy had a frequency of only 1 in the whole dataset. Hence, this strategy was discarded due to unavailability of enough valid cases for processing.
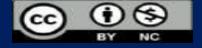
Based on the findings, the second hypostudy of the study, "*The translators do not vary with regard to the application of each single strategy*" was accepted.

4.3 Research Question Three

The third research question of the study was, "*Are there any statistically significant differences among the three degrees of inter translator consistency (ITC) in the data of the study?*" This question was answered using the chi-square test again as depicted in the following table.

Table 7. Chi-square test for the three degrees of inter translator consistency (ITC) in selection of strategies among the three translators

ITC	Observed N	Expected N	Chi-Square	df	Sig.
1	2	44.3			
2	34	44.3	105.39	2	0.000
3	97	44.3			
Total	133				

Inter translation consistency refers to the degree to which two or more translators used the same strategy to render a given term from the SL to the TL. In Table 7, degree 1 means that each translator used a different strategy; degree 2 implies that two out of three translators used a common strategy to render a given neologism, and degree 3 means that all the three translators used the same strategy to render a given neologism. The chi-square test results in Table 7 indicated that the test was significant (Sig. =0.000<0.05). It meant that the observed frequencies were significantly different. The most frequent degree was 3 which meant 97 items out of 133 cases were translated by translators using the same strategy. In 34 cases, two translators used the same strategy and only in 2 cases each translator used a different strategy.

Based on the findings, the third hypostudy of the study, "There are not any statistically significant differences among the three degrees of inter translator consistency (ITC) in the data of the study" was rejected. In fact, a statistically significant difference was observed among the three degrees.

4.4 Discussion

In this part each research question will be presented and all discussions pertaining to that will be presented.

The first research question of the study was, "*Does each translator show variations in the application of the six strategy types proposed by Kurki (2012)?*" Based on the findings of the first research question, the hypostudy, "*Each translator uses the six strategies of Kurki (2012) invariably*" could not be held. It meant that each of the three translators had used the six strategies differently. Based on the findings of Sedighi and YazdaniMoghadam (2012) "neologisms have a wide variety and translators apply different procedures in translating them from one language into another" (p. 6). This factor may have caused variations in the application of strategies by each translator as depicted in the data of the study.

The second research question of the study was, "*Do the translators vary with regard to the application of each single strategy?*" Based on the findings, there were not any statistically significant differences among the translators in the application of each single strategy used for translation of neologisms. The findings of the present study were in line with those reported by Sedighi and YazdaniMoghadam (2012). They concluded that transference was the most frequent translation procedure used by Persian translators in this specific time period, so it showed that there were not significant differences among the translators in the translation of neologisms.

The third research question of the study was, "*Are there any statistically significant differences among the three degrees of inter translator consistency (ITC) in the data of the study?*" Based on findings the most frequent degree of going togetherness was 3 which meant 97 items out of 133 cases were translated by translators using the same strategy. The findings of the present study were in line with those reported by Sedighi and YazdaniMoghadam (2012) – they concluded that a great proportion of the data were translated by translators using the same strategy.

Based on the above discussion, the following conclusions could be drawn:

- Borrowing and transposition were the most/least frequently used strategy types by the translators. The high frequency of borrowing strategy could be justified by the tendency of Iranian translators to take into Persian source language terms without any change (or with minor changes in translation). The reason why transposition was used scarcely could be that this strategy did not fit many of the terms that formed the data of the present study.

- No translator used the strategies similarly. This could be rooted in the variability of the terms studied in this paper. Certain terms could better be

translated into Persian using certain strategies.

- The three translators were not significantly different with regard to application of each of the six strategies. This could imply that there is a common trend among all Iranian translators to translate neologisms from English into Persian. In other words, there seem to be general guidelines for translators to follow and hence the homogeneity of the translators in this regard.

- The most frequent degree of going togetherness (Inter Translator Consistency) was 3 which meant 97 items out of 133 cases were translated by translators using the same strategy. The findings of the present study were in line with those reported by Sedighi and YazdaniMoghadam (2012) who concluded that most of the cases (167 cases) in the data of their study were translated by translators using the same strategy.

5. Implications of the Study

The results of the present study were assumed to have different implications. First, it showed the applicability of the model proposed by Kurki (2012) for the English-Persian language pair. Second, the findings in this study could be used by teachers of translation studies to make students acquainted with the most applicable strategies for translation of neologisms. Third, the results could be used by students to get ready for practical translation activities. Syllabus designers could also use the findings in this study and accordingly modify textbooks and syllabi for teaching of translation. Policy makers in the area of education could also use the findings for policy making purposes.

6. Limitations of the Study

There is no bound to research and no piece of research could ever be deemed as complete. The present study was not an exception to the rule. Although the present researchers endeavored to undertake a comprehensive study, limitations were imposed on it some of which are as follows: Due to time limitation only three translations of the original book were used. Had the researchers more time, she would have used more translations as well; in the present study the researchers investigated 133 new words. An increase in the number of neologisms could result in more generalizability, and finally in the present study, Kurki's (2012) model was applied. Had the researchers had more time she

would have used more than one model to analyze the data.

7. Prospects for Further Research

There are a number of other research works that other researchers can undertake based on the findings of this study. For instance, in this research the English-Persian language pair was used. Other researchers may use other language pairs; here, Kurki's (2012) model was drawn on. Other researchers may use other models with the same data; other researchers may include other variables in their study like gender, as a moderator variable, and check gender variations in the use of strategies. Other variables like first language, job experience period, etc. could also be taken into account, or other researchers may use translators and students and check the way they translate neologisms. Comparative studies could also be done and performance of students and translators could be compared while translating neologisms.

References

هوروات، ال.، تامس، جی.، و سیکرو، سی. اچ. (1381). پرورش ماهی کپور و سایر ماهیان پرورشی: ماهیهای علفخوار چینی، لای ماهی، ماهی طلایی (ترجمه مهدی نژاد و ح. خارا). تهران: موسسه تحقیقات و آموزش شیلات ایران (اثر اصلی در سال 2002 چاپ شد).

هوروات، ال.، تامش، جی.، و سیکرو، سی. اچ. (1384). تکثیر و پرورش کپور و سایر ماهیان پرورشی شامل: آمور، فیتوفاگ، سرگنده، لای ماهی، اردک ماهی، سوف، اسبله، ماهی قرمز (ترجمه م. ر. خوش‌خلق). رشت: دانشگاه گیلان (اثر اصلی در سال 2002 چاپ شد).

هوروات، ال.، تامش، جی.، و سیکرو، سی. اچ. (1391). راهنمای مصور تکثیر و پرورش ماهی کپور، (ترجمه آذرین محققی تمرین و مسعود هدایتی‌فرد). قائم شهر: دانشگاه آزاد اسلامی واحد قائم شهر (اثر اصلی در سال 2002 چاپ شد).

Cartoni, B. (2008). Lexical resources for automatic translation of constructed neologisms: the case study of relational adjectives. Retrieved March 2, 2015 from http://www.lrec-conf.org/proceedings/lrec2008/pdf/247_paper.pdf

Csak, E. (2011). The translation of neologisms in special terminology. *Translation Journal*, *15*(3), 1-18.

Dasgupta, P. (2004). Archives arcades, and the translation of neologisms. *Translation Today, 1*(1), 6-28.

Department of Fisheries Engineering and Technology (2014). Retrieved August 11, 2014 from http://www.cofmangalore.org/depart-fishery-engineering.htm.

Fateh Hanaqtah, M. (2016). Translation English neologisms in military and political texts into Arabic: Issues and strategies

(Ph.D. Study, Department of Linguistics, Universiti Sains Malysia).

HasaniYasin, A., & Mustafa, M. A. (2010). Neologism as a linguistic phenomenon in mass media textbook with reference to translation. *Journal of Historical and Cultural Studies, 2*(6), 243-264.

Houshyar, l., & Karimnia, A. (2013). An Investigation into the strategies applied to Persian translation of the neologisms created in Persian Academy. Retrieved March 2, 2015 from /http://www.question.com.

Horvarth, L., Tamas, G., & Seagrave, C. (2002). *Carp and pond fish culture* (2ⁿᵈ ed.). Oxford: Blackwell Science Ltd.

Jerkus, E. (2011). *Translation of Hungarian economic lexicons with specific regard to neologisms. Journal of Translation and Interpretation, 5*(2), 32-40.

Kurki, M. (2012). *The Finnish subtitling of neologisms in the science fiction television series stargate SG-1.*(M.S. Study, Department of Modern Languages, Faculty of Arts, University of Helsinki).

Lee, J. (2010). Lexicalization patterns of neologisms in Korean under the influence of English. *International Area Review*, *13*(3), 167-180.

Liu, H. (2014). A Probe into translation strategies of tech English neologism in petroleum engineering field studies. *Literature and Language*, *9*(1), 33-37.

Llopis, M. A. (2005). Neological patterns in Spanish legal discourse; the phenomenon of Mobbing. *LSP & Professional Communication*, *5*(2), 48-58.

Megerdoomian, K., & Hadjarian, A. (2010). Mining and classification of neologisms in Persianblogs. Retrieved March 2, 2015 from www.ej lib.cbs.dk.

Ming, Ch., & Varvara, P. (2009). Cross-cultural communication: The comparative analysis of the nouns indicating a person in Chinese and English neologisms. *Canadian Academy of Oriental and Occidental Culture*, *5*(1), 51-61.

Moghadas, S. M., & Sharififar, M. (2014). A Model for cognitive process of neologisms translation. *International Journal of English Language & Translation Studies, 2*(1), 04-19.

Newmark, P. (1988).*A textbook of translation.* London: Prentice Hall

Panahi, M., Shomoosi, N., Samadi, M., & Mohamadian, S. A. R. (2013). Correspondence in translating English neologisms into Persian: An example from children's fiction. *Life Science Journal*, *10*(9), 352-360.

Rey, A. (1995). *Readings in terminology: The concept of neologism and the evolution of terminologies in individual*

languages. Amsterdam: John Benjamins Publishing Company.

Sayadi, F. (2011). *The translation of neologisms. Translation Journal*, *16*(2), Retrieved April 6, 2014 from http://translationjournal.net/journal/56 neologisms.htm.

Schmid, H. J. (2008). New words in the mind: Concept-formation and entrenchment of neologisms. *Anglia*, *126*(1), 1-36.

Sedighi, A., & YazdaniMoghadam, M. (2012). A study of the translation of neologisms in technical texts: A case of computer texts. Retrieved April 6, 2014 from http://www.ijser.org.

Talebinejad, M. R., Dastjerdi, H. V., & Mahmoodi, R. (2012). Barriers to technical terms in translation borrowings or neologisms. *Terminorogy Journal*, *18*(2), 167-187.

Václavíková, V. (2006). *Translation of proper nouns and neologisms in Harry Potter.* (B.A. Study, Department of English and American Studies, Faculty of Arts, Masaryk University).

Volden, J., & Lord, C. (1991).Neologisms and idiosyncratic language in autistic speaker. *Journal of Autism and Development Disorders*, *21*(2), 109-130.

Zhang, W., Wu, F., & Zhang, Ch. (2013). Interpretation of the formation of internet neologisms and their translation from Pound's perspective of "language energy". *International Journal of English Linguistics*, *3*(2), 66-71.

Zhou, L. (2016). Neologism in news English. *Sino-US English Teaching*, *13*(4), 292-295.

Appendix: Strategies used by each translator to render neologisms. (Sample)

English words	Translators			Translation methods		
	1	2	3	1	2	3
Cyprinus carpio	کپور	کپور معمولی	ماهی کپورمعمولی	Generalization	Generalization	Generalization
Saprolegina	ساپرولگنیا	ساپرولگنیا	ساپرولگنیا،قارچ انگلی ساپرولگنیا	Borrowing	Borrowing	Borrowing, Amplification
Costia	کاستیا	کاستیا	کاستیا	Borrowing	Borrowing	Borrowing
Chilodenella	کیلودنلا	کیلودنلا	کیلودنلا	Borrowing	Borrowing	Borrowing
Trichodina	تریکودینا	تریکودینا	تریکودینا	Borrowing	Borrowing	Borrowing
Gyrodactylus	ژیروداکتیلوس	ژیروداکتیلوس	ژیروداکتیلوس	Borrowing	Borrowing	Borrowing
Dactylogyrus	داکتیلوژیروس	داکتیلوژیروس	داکتیلوژیروس	Borrowing	Borrowing	Borrowing
Learnea	لرنآ	لرنآ	لرنآ	Borrowing	Borrowing	Borrowing
Argulus	شپشک ماهی	شپشک ماهی	شپشک ماهی	Generalization	Generalization	Generalization
Piscicola	زالو	زالو	زالو	Generalization	Generalization	Generalization
Formalin	فرمالین	فرمالین	فرمالین	Borrowing	Borrowing	Borrowing
Dipterex	دیپترکس	دیپترکس	حشره کش	Borrowing	Borrowing	Generalization