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Malamatidou, Sofia

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Creativity in Translation through the Lens of Contact Linguistics: A Multilingual Corpus of *A Clockwork Orange*

Sofia Malamatidou

University of Birmingham

Edgbaston, Birmingham, B15 2TT, UK

+44 (0)121 414 7371

s.malamatidou@bham.ac.uk

Abstract

Existing studies on the translation of Nadsat – the invented language in the novella *A Clockwork Orange* – do not provide an in-depth examination of Nadsat as a result of language contact between English and Russian, and ignore the role that translators play in linguistic innovation, as well as the motivating factors behind their creativity. This study addresses this conspicuous gap by examining a multilingual corpus of *A Clockwork Orange* from a language contact and language change perspective, and creating for the first time a link between adaptation, as understood in contact linguistics, and creativity in translation. The focus is on how Russian-derived nouns in the English version have been rendered in four versions of Nadsat (French, German, Greek, and Spanish), and how these differ from naturally occurring Russian loan nouns in these languages, in terms of gender assignment and inflectional suffixes. Results suggest that the level of creativity that translators demonstrate is not simply an indication of their talent, but rather a result of an interplay of factors related to translation, and that concepts from the field of language contact are particularly effective in reframing the way in which creativity is viewed in translation studies.

Keywords

1. Introduction

An important element of the novella *A Clockwork Orange,* which has contributed to its continued success, is Nadsat, the invented language used in the book. Nadsat can be briefly described as a constructed language, which has been purposefully created by the author to fulfil a specific function. However, compared to other constructed languages, like Klingon or Dothraki, it has a rather peculiar characteristic, which positions it somewhere between constructed and natural languages, and facilitates its understanding by the readers: its lexicon is to a large extent a hybrid between English and Russian (Craik 2003), both of which are natural languages. Burgess admits that his aim with Nadsat was to brainwash readers into "learning minimal Russian" (Burgess 1990, 38), and studies using Nadsat words for the examination of vocabulary acquisition (Saragi, Nation, and Meister 1978; Pitts, White, and Krashen 1989) report a significant level of Nasdat learning through reading, suggesting that Burgess' aim can be successfully achieved.

Apart from brainwashing, Nadsat serves a number of other functions, which highlight the central role it plays in the novella. It is a technique of radical defamiliarisation, which allows readers to distance themselves from the violence described in the book, through the use of Nadsat words, which are void of emotional connotations, and a key element of the teenage culture described in the book. Teenagers use a linguistic system that allows them to break away from the novella's dominant dystopian culture (Kohn 2008), while it also represents their anarchic impulses (Stinson 1991) and a tendency towards social deviance (Bushnell 1990). Finally, we could add that, on a more symbolic level, Nadsat is another manifestation of violence in the book, which is performed not only physically, but also linguistically, by breaking up the expected linguistic patterns and juxtaposing English and Russian elements.

Due to the importance of Nadsat to the novella, translations of *A Clockwork Orange* need to create a local version of Nadsat in the target language, instead of employing a universal version of it, as has been the case with Klingon and Dothraki. This additional difficulty posed to translators has encouraged a number of studies to examine how Nadsat has been translated into a range of different languages (Windle 1995; García Morilla 1995; Ginter 2006; Bogic 2010; Maher 2010; Blonskyte and Petroniene 2013). Translations where the foreign, i.e. Russian, element of Nadsat is preserved are often considered most effective, and successful recreations of Nadsat are normally attributed to the translator's competency. However, what these studies do not address is how *exactly* the new version of Nadsat is recreated through the

interaction of foreign and native linguistic elements, and processes of creative reshaping, as well as the effect that this reshaping might have on the function of Nadsat. As a result, these studies fail to address the important role that translators play as creators of a new linguistic system. Yet, examining how translators act as linguistic innovators in the case of invented languages, like Nadsat, can provide valuable information on the factors that encourage innovation and creativity in translation more generally.

The reason for this gap in research can be explained by the lack of an in-depth analysis of Nadsat as an instance of language change, which has resulted from the contact between English and Russian. Consequently, the mechanisms that allow new linguistic systems to be created through the processes of language contact and change, notably adaptation, have been neglected in research focusing on the translation of Nadsat. This study aims to address this gap and examine Nadsat elements from the perspective of contact linguistics to identify the factors that motivate the creative reshaping of Nadsat nouns. Thus, a link between adaptation, as understood in contact linguistics, and creativity in translation is established for the first time, which reframes the way linguistic creativity has been understood not only in relation to the translation of invented languages, but also in relation to the translation of slang, neologisms, and any other aspect of the source text related to linguistic innovation. Additionally, this study offers a new vantage point for understanding the Nadsat element in *A Clockwork Orange*, and a new framework for its analysis, which is based on concepts of contact linguistics.

Analytically, the study uses a multilingual database of naturally occurring Russian loan nouns in English, French, German, Greek, and Spanish and a multilingual corpus consisting of the English source text of *A Clockwork Orange*, and its translation into the aforementioned languages. This is the first time that a multilingual corpus analysis of the novella has been attempted. The study examines how the translated versions of Nadsat are created through processes of adaptation by focusing on how Russian-derived nouns in the English version of Nadsat (English-Nadsat) have been rendered into the French (French-Nadsat), German (German-Nadsat), Greek (Greek-Nadsat), and Spanish (Spanish-Nadsat) versions, and comparing these to naturally occurring Russian loan nouns in these languages. The focus is on morphological adaptation: gender assignment is examined to identify whether semantic factors are prioritised, and inflectional suffixes are surveyed to measure the degree of adaptation. Thus, we can examine how similar or different some aspects of the function of

Nadsat in the translated versions are to English-Nadsat, and, importantly, identify some of the factors that influence creativity in translation.

2. Adaptation and Creativity

Adaptation plays a central role in language change, and it is considered to be a particularly productive and creative mechanism (Stanlaw 1987; Friedrich 2002). When new linguistic elements are introduced to the receiving language, a range of possibilities is available, from reproduction to sweeping change and creative reshaping (McMahon 1994; Johanson 1999; Aitchison 2001; Haspelmath 2009). While some loanwords can be more transparent in terms of their origin, some instances of adaptation can be rather extreme, concealing their original form.

Whether or not a linguistic item will be adapted, as well as the degree of adaptation, depends on a number of factors. These can be related to the inherent properties of the languages coming into contact (language-internal), such as structural similarity and mutually intelligibility, and to the attitudes of the speakers and the sociocultural environment in which linguistic change occurs (language-external), such as the perceived statuses and prestige of the two languages coming into contact. Haspelmath (2009) also proposes the intensity of contact between the two languages as a possible language-external factor. He argues that when a large number of loanwords originate from the same language, there is a tendency for lower degrees of adaptation. Finally, an important factor affecting the degree of adaptation is language policy; more conservative language policies are likely to encourage higher degrees of adaptation to fully incorporate any foreign loanwords. The degree of adaptation will often be a result of the interplay of these factors, and, for this reason, tends to be highly unpredictable.

While adaptation generally takes place to increase the chances of successful integration of loanwords, their survival in the receiving language cannot always be guaranteed. The reason for this is that, as in nature, adaptation is not a teleological process, but a probabilistic one, and "possessing adaptive properties only increases the probability of survival, it does not guarantee it" (Croft 2000, 64). For this reason, it should not be assumed that higher degrees of adaptation imply that a linguistic item is necessarily better incorporated into the receiving language.

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While it is obvious that high degrees of adaptation require creativity, we should not assume that creativity is an inherent trait of bilingual speakers, as is often implied in the literature (see for example Bučar Shigemori 2006; Diniz de Figueiredo 2010). Instead, a link needs to be established between the factors influencing adaptation discussed earlier and creativity. Creativity, as a means to adapt loanwords, is subject to the same motivating factors as adaptation, both language-internal and language-external. High degrees of adaptation do not suggest that the speakers of a specific language simply happened to be more creative, but rather that some specific reason encouraged them to exercise more creativity, and vice versa. McMahon (1994) offers the example of Icelandic, where linguistic borrowing is actively discouraged, as it is believed that it corrupts the language, and any loanwords are heavily and creatively adapted to fit Icelandic patterns. The high degree of adaptation in the case of Icelandic is linked to linguistic conservatism, rather than to the inherent creativity of Icelandic speakers.

If we consider translation as a site of language contact (Baumgarten and Özçetin 2008; Becher, House, and Kranich 2009; Kranich 2011; Kranich, House, and Becher 2012; Malamatidou 2016), it follows that it is not sufficient to simply associate high degrees of adaptation in the translated text with the creativity of the translator, as is often the case in the literature (Kussmaul 1991; Holman and Boase-Beier 1999; Kenny 2001; Tymoczko 2003; Perteghella, Manuela Loffredo 2006; Füzéková 2010). Instead, it is necessary to examine the motivation behind creativity in translation, and this is where the link between adaptation and translation can be created. Similarly to language change, the degree of adaptation is expected to be the result of an interplay of factors, and thus unpredictable. Additionally, as with linguistic loans, high degrees of creativity in translation should not be considered as a definite sign of a successful target language version, e.g. a version that fulfils its intended function.

3. Morphological Adaptation

Adaptation can occur at different linguistic levels, e.g. phonological, morphological, semantic, etc. Phonological adaptation, which is more easily observed in spoken discourse, is almost always present, especially between languages that do not share the same phonetic properties and patterns, while other types of adaptation might not always occur. Since it is often difficult to guess the intended pronunciation of Nadsat words in English and other languages from the written text, especially as far as stress is concerned, phonological adaptation is not examined in this study. Conversely, given that the languages examined here

belong to different morphological systems, it is more meaningful to focus on the morphological adaptation of Nadsat nouns, and in particular on gender assignment and inflectional suffixes.

Loan nouns that are borrowed into languages that distinguish between grammatical genders, like French, German, Greek, and Spanish, need to be assigned to one of the genders, (masculine or feminine for French and Spanish, and masculine, feminine, or neuter for German and Greek) in order to be incorporated into the receiving language. It is possible to distinguish the gender of a loan noun by examining its immediate linguistic context, i.e. articles, determiners, pronouns and adjectives, or, in some cases, its inflectional suffix. A number of different factors can affect the selection of gender in loan nouns (Ervin 1962; Arndt 1970; Ibrahim 1973; Poplack, Pousada, and Sankoff 1982; Corbett 1991), which can be divided into two broad categories: semantic and formal. A third category can be added, that of the unmarked gender in the receiving language, although the validity of this factor is often contested (see Poplack, Pousada, and Sankoff 1982; Kilarksi 1997).

Semantic factors refer to meaning properties of loan nouns. Animacy plays a very important role and it has been found that animate loan nouns closely follow natural gender in all borrowing languages. In the case of inanimate loan nouns, semantic factors affecting gender assignment are the gender of a (near) synonym in the receiving language, if such a word exists, or less frequently the semantic field to which the word belongs, especially in languages that assign a common gender to nouns belonging to the same semantic field. While semantic factors might be guided by similarity of meaning, formal factors are guided by structural similarities of sound and morphology. Similarity might be phonetic, both in terms of a whole word or part of it, typically its ending, or morphological, related to the actual form of the word, which might determine its gender, especially in cases where two languages employ the same gender suffixes. Finally, when none of these factors are able to explain the gender assignment of a loan noun, it has been proposed that it is assigned the default or unmarked gender, which is typically the statistically most frequent gender for inanimate nouns in the receiving language. Instances where the gender of the noun in the donor language is carried over to the receiving language are extremely rare.

The preference for these factors is claimed to be language-specific (Poplack, Pousada, and Sankoff 1982), although it is more accurate to argue that they are language combination-specific, depending on which two languages come into contact each time. It is important to

note that semantic and formal factors are not mutually exclusive and the gender of any loan noun, with the exception of animate nouns, will depend on a combination of both semantic and formal factors in their specific socio-cultural environment (Poplack, Pousada, and Sankoff 1982).

While gender assignment of loan nouns is compulsory in languages that distinguish between grammatical genders, morphological adaptation concerning changes in the structure of the word is optional. Loan nouns can either remain unadapted, or change their form, for example by acquiring morphological markers that are specific to the receiving language, such as inflectional suffixes denoting gender, number, and case. Examples of this type of adaptation relevant to the present study are the deletion of an inflectional suffix, the addition of an inflectional suffix, or the substitution of an existing inflectional suffix. An inflectional suffix is considered anything that appears at the end of the word and can provide grammatical information, such as case, number or gender. It follows that adaptation of inflectional suffixes is more relevant, and thus frequent, in languages that use inflections as gender markers, and/or have a declension system. For example English, which lacks both grammatical gender and a declension system, is not expected to exhibit high degrees of this type of morphological adaptation, unlike Greek or German, which have three grammatical genders and a declension system. However, this type of morphological adaptation is possible in English, if, for example, Russian loan nouns are introduced into English without their inflectional suffix, or if the form of the word changes in some other way. Since Russian is an inflectional language, morphological adaptation in this study focuses on the ending of the words. The aim is to examine whether the inflectional suffixes of the Russian nouns are preserved in the receiving language, even if they do not perform the same function.

An example of an unadapted loan noun is такси /taˈksʲi/ (taxi) in Russian, which is indeclinable, since no Russian nominative singular noun ends in –i. Similarly, in Greek μπαρ /bar/ (bar) ends in a consonant, which is not a typical ending of native Greek nouns, and thus remains indeclinable. Other examples of unadapted loan nouns are *fast-food* in French, and *bungalow* in Spanish. Regarding adaptation, a new suffix is added in the case of *Universität* in German, which is a borrowing from the French *université*, as well in the case of *micrófono* in Spanish (from the English *microphone)*, and the French *socquette* from the English *socket*. In the last three examples, adaptation either takes place by replacing an existing suffix (*Universität, micrófono*), or by adding one (*socquette*), and in each case the new suffix can provide information regarding gender.

Finally, it is worth mentioning that when formal factors tend to dictate gender, the gender of the loan nouns follows from their morphology (Corbett 1991), while in the case of semantic factors the opposite might be observed, with suffixes added once the gender has been assigned.

4. Data and Methods

Data in this study consist of a multilingual database of naturally occurring Russian loan nouns in English, French, German, Greek, and Spanish, and a multilingual corpus of the English source text of *A Clockwork Orange* (Burgess 1962) and its translation into the aforementioned languages. These languages have been chosen to allow different morphological systems to be included in the corpus: French and Spanish distinguish between two genders, while German and Greek distinguish between three. At the same time, German and Greek have a declension system, like Russian, and, thus, make extensive use of inflectional suffixes, while English, French, and Spanish do not. This allows for a rigorous investigation of how translators approach Nadsat, which does not focus on a single case-study, and allows for comparisons to be made across languages, and valid conclusions to be reached regarding the factors that might affect creativity when it comes to linguistic creativity in translation. Through this analysis, it is possible to understand how translators deal with linguistic innovation, since it is possible to compare naturally occurring Russian loanwords in the receiving language to Nadsat words in the target text.

The multilingual database was compiled by consulting leading monolingual dictionaries in each language under investigation. It includes information on a) the gender of loan nouns in each language, except for English, b) the gender of their (near) synonym based on their dictionary definition, and c) the form of the Russian noun from which these originate. Based on this information it is possible to identify to what extent semantic factors dictate gender assignment in naturally occurring loan nouns, and their degree of morphological adaptation in relation to inflectional suffixes. Loan nouns which, according to the dictionaries, originate in Russian but have been introduced into the receiving languages through other languages have not been included (for example *bolchevique* in Spanish has entered the language through French, and τούντρα /'tundra/ in Greek is derived from Italian), as their original form, and in some cases their meaning, might have been altered due to processes of adaptation in those other languages. Proper names, such as *Sputnik* and *Kalashnikov* have also not been included, as they tend to resist adaptation. In total, 114 Russian nouns were identified in English, 87 in

French, 170 in German, 40 in Greek, and 24 in Spanish. The difference in the total number of loan nouns is revealing not only of the intensity of contact between the two languages, but also as a sign of how comprehensive the dictionaries are.

The multilingual corpus (Table 1) consists of approximately 300,000 words. As the novella has been translated multiple times into each language, an attempt has been made to include the earliest translation available to minimise any influence from existing translations in the same language. However, in the selection process, only translations with a Nadsat glossary at the end were used, as this offers explicit information on the synonym in the target languages, which the Nadsat noun replaces, offering more reliable information regarding gender. Most versions with a glossary also include the additional 21st chapter, which was omitted in the American edition of the novella until 1986 and many of the early translations, but was included in the British edition. In order to create a matching corpus and to gather as much linguistic information about Nadsat nouns as possible, which would help in gender identification, only full versions (i.e. all 21 chapters) were included in the corpus. Since editions including the last chapter and a glossary were often produced by the same translator(s) as earlier editions, where these are omitted, it has been possible to include in the corpus the earliest translations into French and Spanish.[1] However, this is not the case for German, where an earlier version (Brumm 1972) produced by a different translator but not including a glossary exists. However, the lack of a glossary is likely to render the analysis unreliable, especially if we consider that German distinguishes between three grammatical genders. The case of Greek is an exceptional one, as it has not been possible to locate the earliest translation (Galanopoulos 1978).

Language	Year	Translator(s)	No of words
English	1962	Anthony Burgess (author)	59,057
French	1972	Georges Belmont & Hortense Chabrier	68,688
German	1997	Wolfgang Krege	56,865
Greek	2011	Vassilis Athanasiadis	59,662
Spanish	1976/2012	Aníbal Leal & Ana Quijada	55,751
Total	-	-	**300,023**

Table 1: *A Clockwork Orange* multilingual corpus

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[1] In the case of Spanish, the additional 21st chapter was translated by Ana Quijada in 2012 and was added to the original 1976 edition. However, no new Russian-derived Nadsat nouns are introduced in this chapter, which would have negatively affected the analysis.

The texts were scanned and converted into machine readable format, and the corpus was examined using Tetrapla Plus, a multilingual corpus concordancing and research tool that allows for the simultaneous examination of up to three target texts. The corpus was examined in terms of Nadsat nouns in the English source text and how these have been rendered into the four target languages. In order to create a list of all English-Nadsat nouns derived from Russian, which could then inform the corpus analysis, the glossaries at the end of the English editions, notably those compiled by Hyman (1962), Rawlinson (2011), and Biswell (2013) were consulted, and 135 English-Nadsat nouns were identified. The multilingual corpus was searched for each of these nouns, and further lists were created for the Nadsat nouns in each of the four translations. Overall, 123 French-Nadsat, 61 German-Nadsat, 126 Greek-Nadsat, and 113 Spanish-Nadsat nouns derived from Russian were identified, suggesting that English-Nadsat nouns are not always translated as Nadsat nouns in the target language, with German being the most extreme case. The lists include information on the following: a) gender of the Nadsat nouns, which was identified from their immediate linguistic context, b) the gender of their (near) synonym in the target language, which was identified with the help of the glossaries at the end of the translations, and c) the form of Russian nouns, which was identified with the help of the glossaries at the end of the English text, most notably Rawlinson (2011).

Nadsat nouns were compared to naturally occurring Russian loan nouns to establish whether the same patterns can be identified in both cases. For the degree of adaptation, the translated versions were also compared to the English source text to establish the influence that the source text might have exerted on the translation. In general, any differences observed provide evidence of the motivating factors behind adaptation, or lack thereof, in translation, and in particular of how the translator might be compared to Burgess in terms of linguistic creativity. This examination allows us to compare some aspects of the function of Nadsat across languages in ways that have not been possible until now, and enlarges and refines our understanding of creativity in translation.

5. Results

5.1 Gender Assignment

In order to identify the principal factor that dictates gender assignment, the gender of Russian loan nouns and Nadsat nouns was compared to that of their respective synonym. When the two do not coincide, it is safe to argue that semantic factors do not play a significant role.

English is not included in this analysis, as it does not distinguish grammatical genders. Overall, similar patterns are observed and the gender of naturally occurring Russian loan nouns in the languages examined in this study is dictated to a large extent by semantic factors (Table 2).

Language	Semantic factors		
	Animate nouns	Inanimate nouns	All nouns
French	22/22 (100%)	37/65 (56.9%)	59/87 (67.8%)
German	39/47 (83.0%)	60/119 (50.4%)	99/166 (59.6%)
Greek	13/13 (100%)	16/27 (59.2%)	29/41 (70.7%)
Spanish	3/3 (100%)	13/20 (65.0%)	16/23 (69.6%)

Table 2: Semantic factors in gender assignment of naturally occurring Russian loan nouns

As discussed earlier, semantic factors are expected to affect gender assignment in animate nouns, and this is the reason why the gender of the vast majority of animate nouns is dictated by semantic factors across all languages. Exceptions to this are only found in German, and refer to animals. While semantic factors are expected to have a strong effect on the gender assignment of animate nouns, different factors might dictate gender assignment in inanimate nouns. It was found that the gender of the (near) synonym affects the gender of roughly only one out of two (50%-65%) inanimate loan nouns across the four languages examined here. This distribution of factors is unrelated to the individual loan noun, and the same Russian inanimate noun is assigned gender based on different factors in different languages. For example, the gender of *glasnost* is dictated by semantic factors in all languages, but Greek, while the gender of *samovar* is dictated by semantic factors only in the case of German and Spanish.

The examination of Nadsat reveals that semantic factors play a more crucial role in the gender assignment of Nadsat nouns (Table 3) than of naturally occurring Russian loan nouns. Nouns that have a double gender have been excluded from this analysis, as well as Nadsat nouns whose gender is unidentified in the target text. Overall, a relatively high proportion of Nadsat nouns (70%-90%) follows the gender of the target language synonym. It is worth

mentioning that the form of the noun in English-Nadsat does not seem to play a role in gender assignment.

Language	Semantic factors		
	Animate nouns	Inanimate nouns	All nouns
French	26/27 (96.3%)	72/82 (87.8%)	98/109 (89.9%)
German	17/18 (94.5%)	16/30 (53.4%)	33/48 (68.8%)
Greek	27/29 (93.1%)	82/95 (86.3%)	109/124 (87.9%)
Spanish	24/27 (88.9%)	55/79 (69.6%)	79/106 (74.5%)

Table 3: Semantic factors in gender assignment of Nadsat nouns

Similar to naturally occurring Russian loan nouns, the grammatical gender of animate loan nouns always follows their natural gender when they refer to human beings, and mostly follows the gender of their synonym when they refer to animals. For example, *veck* (person/man) is masculine in all target languages, while *koshka* (cat) is masculine in French and Spanish, following the gender of the synonym *chat* and *gato* respectively, while it is feminine in Greek, following the gender of the synonym γάτα. Unlike naturally occurring Russian loan nouns, semantic factors have a strong influence on the gender of inanimate nouns as well, affecting between 50% and 90% of all Nadsat nouns across languages. The high proportion of semantic factors suggests that translators have prioritised meaning in the target texts and have been guided to a large extent by the meaning of the Nadsat nouns, rather than by their form.

However, there is significant variation in the proportions, and semantic factors affect gender assignment significantly more in the case of Nadsat inanimate nouns compared to naturally occurring Russian loanwords in French (χ^2=16.46, d.f.=1, p<0.0001) and Greek (χ^2=8.1, d.f.=1, p=0.0044), but not in German (χ^2=2.33, d.f.=1, p=0.1269) and Spanish (χ^2=0.02, d.f.=1, p=0.8875). Thus, it is only the German and Spanish translators who seem to have managed, either consciously or unconsciously, to make Nadsat nouns resemble the patterns followed in naturally occurring Russian loan nouns in German and Spanish respectively, at least as far as gender assignment is concerned. This suggests that they might not have been so

concerned or restricted by the meaning of Nadsat, and were able to create a linguistic system that would follow the patterns of gender assignment in the target language. However, the fact that only approximately 50% of the English-Nadsat nouns are translated as German-Nadsat nouns cannot be ignored. This omission should not be attributed to the skills of the translator, since in many cases the omitted nouns resemble translated ones (e.g. *britva* and *bitva)*, but rather to the fact that the translator most probably wanted to create a more accessible version, which would be lighter in terms of Nadsat elements. The fact that there was no inherent difficulty in the translation of the omitted nouns is further supported by the fact that subsequent German translations include a much higher number of German-Nadsat nouns.

A representative example of the importance of semantic factors in the gender assignment of inanimate Nadsat nouns is the English-Nadsat noun *knopka* (button), which derives from the Russian кнопка /'knopkə/. This is masculine in French and Spanish, and neuter in Greek, in each case following the gender of the synonym in the target language (*bouton, botón,* and κουμπί respectively). However, it might have been expected that, at least in the case of Spanish and Greek, morphological similarity would inform gender assignment, since the suffix –a can also be used in Spanish and Greek for marking feminine nouns. The most revealing example, however, of the importance of semantic factors in the gender assignment of Nadsat nouns is the English-Nadsat noun *noga* (foot, leg), derived from the Russian нога /nɐ'ga/, and its French-Nadsat counterpart *noga*. In French-Nadsat, this noun appears as both masculine and feminine, depending on whether it refers to *foot*, which is masculine in French (*pied)* or *leg*, which is feminine (*jambe)*. It is particularly clear in this case that the translator relied on the meaning of the word to decide on its gender.

By focusing more on semantic factors for gender assignment the French and Greek translators provide readers with additional grammatical information, which might act as clues as to the meaning of the words, which are not available to the English readers. These translators have tried to make Nadsat nouns follow as closely as possible the gender patterns of the nouns that are being replaced, thus, causing minimal disruption to the target linguistic system, and facilitating their comprehension. Although comprehension is a noble aim in most translations, it is not so in the case of Nadsat, since it alters some aspects of the function of Nadsat intended by Burgess.

5.2 Inflectional suffixes

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The analysis of the factors affecting gender assignment revealed that translators often prioritised the meaning of Nadsat words, and as a result facilitated the comprehension of the target text. In order to examine what other considerations might affect the translators' ability to innovate linguistically, it is necessary to examine the degree of adaptation of the suffixes of Nadsat nouns and compare it to the respective degree of adaptation of naturally occurring Russian loan nouns. English has been included in this analysis, as contrary to gender, morphological adaptation of the form of the word is possible in English. Data from English also allow us to measure the degree that Burgess adapted English-Nadsat nouns, and examine whether translators followed patterns found in the English source text or those pertinent to naturally occurring language change in the target language.

A simple taxonomy of adaptation was employed where a low degree of adaptation was assumed whenever the form of the Russian noun has been kept the same (or very similar) in the receiving language, and a high degree of adaptation is assumed when the form of the Russian noun has changed, particularly its ending, e.g. by the addition, deletion or replacement of an inflectional suffix. For example, *copeck* is considered to be highly adapted in English, since the suffix –a, which is present in Russian копейка /kɐpʲˈejkə/, has been omitted, while adaptation is considered to be low in *czar*, which is very similar to the Russian царь / t͡sˈarʲ/. Similarly, the English-Nadsat noun *rooker* (also found as *rook*) is considered to be highly adapted (рука /rʊkˈa/ in Russian), while adaptation is low in litso (лицо /lʲit͡sˈo/). Only two levels of adaptation are identified (low-high) to facilitate the analysis and make classification easier. Decisions regarding the level of adaptation are made by examining only the ending of words. The reason for this is that Russian makes extensive use of inflectional suffixes, and thus it is important to examine whether or not these have been preserved in the receiving language. Additionally, in all languages, apart from English, the use of inflectional suffixes, or lack thereof, can provide information regarding gender.

For naturally occurring Russian loan nouns, similar patterns are observed across languages, with the degree of adaptation being generally low (15%-40%), especially for inanimate nouns, where it is approximately between 15% and 30% (Table 4).

Language	Changes in the inflectional suffix		
	Animate nouns	Inanimate nouns	All nouns
English	5/36 (13.9%)	11/78 (14.1%)	16/114 (14.0%)
French	7/22 (31.9%)	20/65 (30.8%)	27/87 (31.0%)
German	10/47 (21.3%)	27/123 (21.9%)	37/170 (21.8%)
Greek	11/13 (84.6%)	6/27 (22.3%)	17/40 (42.5%)
Spanish	0/4 (0.0%)	4/20 (20.0%)	4/24 (16.7%)

Table 4: Adaptation of inflectional suffixes in naturally occurring Russian loan nouns

English, as expected, is at the lower end of the scale, while French seems to adapt loan nouns the most. This might be related to morphological differences between the languages, and to the attitude of the speakers towards foreign elements in their language. Contrary to gender assignment, no clear differences can be identified between animate and inanimate nouns, with some languages heavily adapting animate nouns, e.g. Greek, while others not at all, e.g. Spanish. Some examples of adaptation include *yurt* in English, *yourte* in French, and *Jurte* in German (from the Russian юрта /ˈjʉrtə/), ουκάζιο in Greek, and *ucase* in Spanish (from the Russian указ /ʊˈkas/). As can be seen, a suffix can be added, replaced, or removed.

An examination of the inflectional suffixes of Nadsat nouns reveals that adaptation is higher compared to naturally occurring Russian loan nouns (Table 5). Overall, approximately between 30% and 70% of Nadsat nouns are adapted, with lower proportions observed for animate (15%-60%) than inanimate Nadsat nouns (30%-70%). Certain languages, e.g. Greek, seem to adapt Nadsat nouns considerably more than others, e.g. English and German, and there is significant variation in the proportions.

Language	Changes in the inflectional suffix		
	Animate nouns	Inanimate nouns	All nouns
English	11/38 (28.9%)	28/97 (28.9%)	39/135 (28.9%)
French	4/27 (14.8%)	41/96 (42.7%)	45/123 (36.6%)
German	5/19 (26.3%)	16/42 (38.1%)	21/61 (34.4%)
Greek	18/30 (60%)	69/96 (71.9%)	87/126 (69.0%)
Spanish	15/28 (53.6%)	42/85 (49.4%)	57/113 (50.4%)

Table 5: Adaptation of inflectional suffixes in Nadsat nouns

Given the variation, it is necessary to examine in more detail the situation of English-Nadsat. The examination of the English source text reveals that Burgess intended English-Nadsat to appear as more adapted than naturally occurring Russian loan nouns in English, but was careful not to reach too high degrees of adaptation, with Nadsat nouns being adapted approximately twice as much (106.4%) compared to naturally occurring Russian loan nouns in English. Statistical tests further support this and indicate that there is a statistically significant difference in the level of adaptation (χ^2=7.08, d.f.=1, p=0.0078). In terms of the function of Nadsat, the language that Alex and his friends use is adapted to the dominant linguistic system (more than what might be expected compared to other borrowings in the language), but only to a certain extent, which allows them to function within it, and nonetheless be independent.

All target languages exhibit a higher degree of adaptation compared to naturally occurring Russian loan nouns in these languages. The difference is found to be statistically significant in the case of Greek (χ^2=8.05, d.f.=1, p=0.0046) and Spanish (χ^2=7.83, d.f.=1, p=0.0051), but not French (χ^2=0.47, d.f.=1, p=0.493) and German (χ^2=3.18, d.f.=1, p=0.0745). At first sight, it seems that the Spanish and Greek translator successfully replicated Burgess' intention with Nadsat, and that they reproduced a similar effect, allowing for Nadsat nouns to be more heavily adapted than naturally occurring Russian loan nouns in Greek and Spanish. However, statistical tests can only capture part of the picture. In the case of Nadsat, it is important to

have the right degree of adaptation, as identified in English-Nadsat, if its function is to be preserved through translation. This information can be obtained by looking at the percentage changes of adaptation between naturally occurring Russian loan nouns in different languages and their versions of Nadsat.

In the case of English-Nadsat, it was found that adaptation was higher by 106.4% compared to naturally occurring loan nouns. An increase was observed in all target languages, but not to an equal degree. Thus, a 18.1% increase was reported in French-Nadsat, 63.2% in German-Nadsat, 62.3% in Greek-Nadsat and 201.8% in Spanish-Nadsat. From this analysis, it can be concluded that none of the translations managed to come relatively close to the English-Nadsat proportions. Although based on the statistical tests the Spanish translator seems to have successfully replicated the function of Nadsat, the analysis of percentages suggests that he adapted Spanish-Nadsat nouns to a too high degree. As a result, the violation of the linguistic, and as an extension the social, system is less serious in Spanish-Nadsat compared to English-Nadsat. This might create the impression that those who speak Nadsat are particularly well adapted to the dominant social system, in the same way that their language is well adapted, something that could not be further from the truth for the protagonist and his friends in *A Clockwork Orange*. In that respect, the Spanish version seems to be the most conservative one. Conversely, the percentage change analysis confirms the statistical analysis for the French translation, clearly showing that the French translator did not adapt French-Nadsat noun to a sufficiently high degree. This affects the function of Nadsat in the novella, as the defamiliarisation effect is much stronger and those who speak Nadsat appear as being much more marginalised. The German and Greek versions are somewhere between the Spanish and the French ones regarding the degree of adaptation. Given that, out of the two, only the Greek version appears to have replicated Nadsat's aim, based on the results from the statistical analysis, the Greek translation can be considered as the closest one to English-Nadsat in terms of degree of adaptation.

Since French represents a rather odd case when compared to the other language versions, it is worth examining it further to identify the possible factors that might be behind the relatively low degree of adaptation of French-Nadsat nouns. If we compare the degree of adaptation found in the source and target texts, it is again clear that French stands out from the crowd. In particular, while the other language versions of Nadsat seem to adapt Nadsat nouns considerably more when compared to English (something that can be attributed to the individual differences of languages when it comes to language change), French seems to be

considerably closer to English and statistical tests suggest that, in fact, there is no statistically significant difference in the adaptation of English and French Nadsat nouns (χ^2=1.4, d.f.=1, p=0.2367). Thus, it seems that the French translators relied much more on what was is in the English source text, rather than on what happens in naturally occurring language change in French.

5.3 Discussion

The creativity manifested in relation to Nadsat nouns in each of the four target languages examined in this study seems to be subject to the same considerations, albeit to a varied degree. In the case of French, priority is given to the meaning of Nadsat nouns, but the function of Nadsat is not successfully replicated, as the source text has exerted significant influence, and there is almost a reluctance to move away from it, which limits the creativity that the translator might have exercised otherwise. The German version is clearly affected by meaning considerations, which is particularly evident from the fact that only half of the English-Nadsat nouns are translated. It also exhibits a rather low degree of adaptation, which alters the function of German-Nadsat, and might be attributed to the fact that Burgess' aim with Nadsat has not been identified. The Greek version also prioritises meaning, but manages to come much closer to English-Nadsat in relation to its function, breaking away from the source text, and taking into consideration patterns found in naturally occurring loan nouns. However, as with German-Nadsat, the degree of adaptation is still relatively low, suggesting that the aim of Nadsat might not have been correctly identified. Finally, the Spanish version is the one least concerned about meaning, which might at first sight encourage creativity, but at the same time this version exhibits the highest degree of linguistic conservatism in terms of the degree of adaptation, and thus, does not succeed in replicating the function of Nadsat. As in naturally occurring language contact, high degrees of adaptation do not mean that Nadsat performs the same function in the translated texts as it does in the source texts, at least as far as the Russian-derived nouns are concerned. In other words, it cannot be assumed that because Spanish adapts Nadsat nouns the most, it is the most successful version in that respect, since this high degree of adaptation considerably alters specific aspects of the function of Nadsat.

Following from the above, a number of different factors can be identified, which affect the creation of Nadsat through translation. As in naturally occurring language contact, these factors are language combination-specific, resulting in different types and degrees of

creativity demonstrated by each translator. These factors are either target-oriented, or source-oriented. Target-oriented factors relate to what translators believe is expected of translation, which can also be associated with the fear of adding or altering meaning in translation. For example, the fact that meaning is prioritised in some of the target texts suggests that translators potentially believe that preservation of meaning is the aim of the translation activity. This can be linked to an extent to typical features of translation, such as simplification, explicitation, and normalisation (Baker 1996). For example, Kenny (2001) considers creativity as the ability to avoid normalisation, i.e. employing typical target language patterns, as the latter can be a sign of lack of creativity, especially where linguistic creativity is the goal.

Another important target-oriented factor that needs to be examined is the target literary system, and more specifically its tolerance to linguistic creativity, as it is possible that not all literary systems have the same tradition of linguistic innovation as English. If an approach to the translation of Nadsat, which appears to be conservative at first glance, is produced in a literary system where linguistic creativity is rare, then the translator might be considered to have exhibited a high(er) degree of creativity. In that respect, creativity can be seen as relevant to the target literary system. However, French, German, Greek, and Spanish have a solid history of linguistic creativity in 20th century writing, before or around the time that translations of *A Clockwork Orange* were published. Examples include George Perec and Raymond Queneau in France, Pieke Biermann and Elfriede Jelinek in Germany,[2] and Nikos Kazantzakis and Odysseas Elytis in Greece. Even in Spain, which at the time was under Franco's regime, and experienced heavy censorship, writers such Juan Goytisolo and Luis Martín Santos would attempt to exercise linguistic creativity. However, the censorship imposed on translations during that time (as well as the translators' self-censorship) might explain why the Spanish version is in some respects the most conservative, and suggests that the Spanish translator has been more creative than what might originally appear.

Source-oriented factors relate to the intention of the source text author and the influence that the source text exerts on the target text. Translators might misinterpret the aim of the author, or they might be reluctant to move away from the patterns found in the source text for fear of adding or altering meaning. As can be seen, similarly to naturally occurring language contact, these factors are strongly interrelated, and it is not possible to consider one without referring

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[2] Both these authors and many more have been included in Kenny's (2001) GEPCOLT corpus examining the translation of creative source-text word forms and collocations.

to the others. It is also interesting to note that the distinction between target and source oriented factors reminds us of a popular dichotomy in translation studies, e.g. the distinction made between foreignisation and domestication (Venuti 2008), or overt and covert translation (House 1997). Thus, a fruitful avenue of future investigation would be the examination of the relationship between the factors affecting creativity and the overall translation approach.

Other avenues of future investigation include the examination of other linguistic categories of Nadsat (verbs, adjectives, and adverbs) to examine how they are translated in different languages. However, given that lexicon is most easily and frequently borrowed (Hockett 1958; Prince 1988; King 2000), care must be taken to ensure that adequate examples of naturally occurring Russian loan verbs, adjectives and adverbs are identified in each language. Other studies could also focus on a qualitative analysis of Nadsat words, examining in detail individual Nadsat words across languages, as well as other aspects of the function of Nadsat, such as its aesthetic or humorous effect. Finally, it would also be interesting to examine whether the brainwashing effect intended by Burgess can be successfully achieved in other languages.

It should be clear from the discussion so far that creativity in translation, especially if we consider linguistic experimentation, is not simply a choice on the translator's part or a reflection of her talent, as is often suggested in the literature (Ulrych 2003; Bayer-Hohenwarter 2009; O'Sullivan 2013), but rather the result of a complex network of different factors, which can transcend the profile of the individual translator. By the same token, creativity in translation, as in language change, cannot be attributed to a single factor, and, even though the creativity of each individual translator certainly plays a role, with some translators being more competent than others, so do a number of other factors related to the nature of the translation activity. Thus, it is proposed that future studies dealing with creativity in translation do not focus solely on the profile of the individual translator, but also, and perhaps more importantly, take into account the influence that might be exercised by the source text, as well as the surrounding target context, its socio-political conditions, and the importance that the target culture places on meaning in translation, over the potential artistic value of a translation. Finally, creativity also depends on the successful identification and interpretation of creativity in the source text. Without this, as an initial step of analysis, any attempt at creative reshaping in translation, relies on chance, and cannot serve any artistic, or other, function.

6. Conclusion

The present study demonstrates that in order to understand how creativity works in translation, it is necessary to examine it more closely in relation to the context surrounding the translator, and that the creativity translators demonstrate is not simply an indication of their talent, but the result of a complex interplay of factors. This is the first time that these factors have been acknowledged, using the concept of adaptation from contact linguistics. As a result, the traditional view of creativity in translation, especially as far as linguistic innovation, through the use of invented languages, slang, or neologisms is concerned, is challenged and reframed. The results from the study can inform research into how creative rewriting in translation can be encouraged not only by cultivating translators' creativity through training (Kussmaul 1991; Wilss 1996; Robinson 1998; O'Sullivan 2012), but also by increasing our understanding of the intricate network of factors at play. Finally, this study has demonstrated the significant interpretive power that concepts that lie outside the field of translation studies have in enlarging and refining our understanding of the nature of translation. It is believed that this study will become a seminal point of reference for further interdisciplinary research into creativity in translation.

Acknowledgements

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