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Patterns of Intrasentential Code-Switching in Turkish-English Bilingual Discourse: Testing the Free Morpheme and the Equivalence Constraint

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Abstract

This study investigated the intrasentential patterns of code-switching in Turkish-English bilingual discourse in L2 English classroom interactions. The patterns were structurally analyzed in terms of their consistency with two grammatical constraints, namely the Free Morpheme and the Equivalence Constraint. The findings suggested that the data were incompatible with the Free Morpheme Constraint as there were many instances of bound morphemes from Turkish attached to the nouns in English. Yet, the data were partially consistent with the Equivalence Constraint as shown by some switches presenting phrasal congruence and violations confirmed by switches at points where the languages showed no linear equivalence.

Keywords: Turkish-English Code-Switching, Code-Switching in Classroom Discourse, English as a Second Language, Intrasentential Code-Switching, Grammatical Constraints On Code-Switching, Free Morpheme Constraint, Equivalence Constraint

Türkçe-İngilizce Çiftdilli Söyleminde Cümle İçi Düzenek Değiştirme Modelleri: Serbest Morfem ve Denklik Sınırlamalarının Test Edilmesi

Özet

Bu çalışma ikinci dil olarak İngilizce öğrenilen sınıf etkileşimlerindeki Türkçe-İngilizce çift dilli söylemde bulunan cümle içi düzenek değiştirme modellerini incelemiştir. Modeller Serbest Morfem ve Denklik Sınırlamaları adlı iki dilbilgisel sınırlamayla olan uyumları açısından yapısal olarak incelenmiştir. Sonuçlar, İngilizce isimlere eklenen Türkçe bağımlı morfemlere ait çok sayıda örnek nedeniyle verilerin Serbest Morfem Sınırlaması ile uyuşmadığını göstermiştir. Ancak veriler Denklik Sınırlaması ile kısmen uyumlu olmuştur. Sözcük gruplarında uyum gösteren bazı düzenek değiştirme örnekleri ve dillerin doğrusal denkliğinin olmadığı noktalarda yapılan düzenek değiştirmelerin doğruladığı ihlaller, uyumun neden kısmi olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Türkçe-İngilizce Düzenek Değiştirme, Sınıf İçi Söylemde Düzenek Değiştirme, İkinci Bir Dil Olarak İngilizce, Cümle İçi Düzenek Değiştirme, Düzenek Değiştirmede Dilbilgisel Sınırlamalar, Serbest Morfem Sınırlaması, Denklik Sınırlaması.

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1. Introduction

Bilingual code-switching (CS) is the use of phonological, lexical and morphosyntactic elements in the same utterance or stretch of conversation. CS is a distinguishing feature of bilingual communities worldwide and is seen as an advantage, not a deficit of the bilingual when compared to a monolingual since it refers to a process which reflects the ability of the language user to simultaneously use two grammars in the mind interactively (Cook, 2002, 2013). The process of bilingual code-switching as the alternative use of two or more languages in the same conversation can be said to have two forms: intrasentential and intersentential code-switching, the former referring to switching phonological, lexical and morphosyntactic elements within a single utterance and the latter switching between utterances as the relevant unit for analysis (Milroy and Muysken, 1995; Muysken, 1997; Myers-Scotton, 1993).

In addressing the question whether CS is a rule-governed or a random linguistic behavior, researchers first maintained that it is random and deviant (Labov, 1972; Lance, 1975; Weinreich, 1968), but through the progress in the field over the past three decades, CS has been continuously defined as a grammatically constrained phenomenon (Muysken, 2000; Myers-Scotton, 1993; Poplack, 1980). The underlying reason for this allegation has been the empirical observation that bilinguals' intrasentential CS patterns appear at certain morphosyntactic boundaries, but not others. While some early efforts aimed to specify those switch sites, e.g. between pronominal subjects and verbs (Gumperz, 1982; Timm, 1975) or between conjunctions and their conjuncts (Gumperz, 1982), others provided more general accounts of the distribution of CS at certain syntactic boundaries marked with word order equivalence occurring in two languages (e.g. Lipski, 1978; Pfaff, 1979; Poplack, 1980, 1981).

Poplack (1980) analyzed Spanish-English bilingual utterances and proposed *the Free Morpheme Constraint* and *the Equivalence Constraint* elaborated below. The study was among the first attempts to suggest explanatory principles for the grammatical constraints on code-switching, which were claimed by Poplack (1980, 1981) to be universally valid. As exemplified below, these grammatical constraints have been examined through various studies on code-switching focusing on different language pairs.

This study aims to analyze the validity of these constraints for Turkish (L1) and English (L2), a non-investigated language pair in CS literature with regard to the Free Morpheme and the Equivalence Constraint. In specific terms, it analyzes whether the intrasentential CS patterns in a Turkish-English bilingual discourse are constrained by the Free Morpheme and the Equivalence Constraint or violate them. The Turkish-English corpora of the study are based on the teacher-student interactions in an EFL classroom in Turkey, a discourse setting, not analyzed in terms of the congruence of CS patterns with the Free Morpheme and the Equivalence Constraint.

1.1. The Free Morpheme Constraint

The Free Morpheme Constraint suggested by Poplack (1980) proposes that "codes may be switched after any constituent in a discourse provided that the constituent is not a bound morpheme" (p.586). A simpler definition of the constraint as suggested by Backus (1986) is: "A word stem cannot have affixes from other languages attached to it" (p. 5). Poplack (1981) devised a further version of this constraint as follows: "A switch is prohibited between a bound morpheme and a lexical form unless the latter has been phonologically integrated into the language of the former" (p. 12). A famous example in literature given about the constraint is

**estoy* eat-*iendo* (Poplack, 1980: 586).

I am eat-*ing*.

According to Poplack (1981), "eat-*iendo"* is not possible if the verb stem is not phonologically adapted into Spanish.

The Free Morpheme Constraint has been a controversial issue in the field of CS research. On one hand, there is line of research which attested it such as Hebrew-Spanish bilingual discourse analyses of Berk-Seligson (1986), the Moroccan Arabic-French corpus of Bentahila & Davies (1983), the Italian-English bilingual data examined by Belazi, Rubin & Toribio (1994) as well as the analyses of Clyne (1987) and McSwan (1999). Some other more recent research studies provide further evidence for the universal validity of the constraint with different language pairs including Khasi-English (Talang-Rao, 2014), Portuguese-English (Jalil, 2009) and English-Afrikaans (Van Gass, 2002). On the other hand, evidence against the universal validity of the constraint often came from interactive situations which include agglutinative languages such as Turkish. To illustrate, in the Turkish-Dutch

bilingual discourse analyses of Boeschoten & Verhoeven (1987) and Backus (1986), Turkish bound morphemes were found to be attached to Dutch nouns. An example from the former study is:

*Voorman*lık yapıyorum

I am working as (a) *foreman*.

As seen in (2), Turkish word-building suffix *–lık* was attached to a Dutch noun without a change in pronunciation.

Verhoeven (1991) in a later study on Turkish-Dutch bilingualism also stated that Turkish word forming suffixes freely occurred after Dutch nouns such as the use of *–cı* suffix after the Dutch noun *ijs* (=ice-cream) referring to a vendor of ice-cream:

ijs-*çi*

ice-cream *vendor*

As the researcher indicates, the Dutch nouns were morphologically treated like Turkish ones regardless of the phonological shape they were in.

CS patterns as counter-examples to the Free Morpheme Constraint have also been shown in the language pairs including non-Indo-European languages. For instance Nartey (1982) illustrated CS patterns where suffixes from Adanme were affixed to English nouns. Bokamba (1988) also displayed French verb stems having affixes of the Lingala language on both sides. These counter-examples for the Free Morpheme Constraint did not only include language pairs with a non-Indo-European language. The constraint was also witnessed to be violated in the language pairs where both of the languages were Indo-European. Clyne (1987) showed some examples of violations of the Free Morpheme Constraint in the CS patterns through the analysis of English-Dutch and English-German bilingual discourse. For instance, in a switch from English to Dutch, the English verb conjugation morpheme –s was found to be attached to the German verb stem *mein*:

That's what *Papschi mein*s to say

That's what *Daddy mean*s to say

Some other studies examining counter examples include Chan (1999), Ene (2007), Jake, Myers-Scotton and Gross (2002), Muto (2013), Myers-Scotton (1993), and Turjoman (2016). Poplack's Free Morpheme Constraint indeed was based on a restricted corpus. Given the fact that the constraint was derived from the Spanish-English CS in the US and that Spanish and English share various syntactic categories and frequently use inflection for the same functions, it is necessary that the constraint be tested in a great variety of bilingual communities with many language pairs, a fact acknowledged by Poplack as well (1980:615).

Backus (1986) indicates that agglutinative languages use inflection more liberally to express grammatical functions than the Indo-European languages often studied in CS research. He further devises the following hypotheses about the Free Morpheme Constraint for the language pairs with an agglutinative language: "(1) They would either ignore the Free Morpheme constraint, (2) They would not show CS at all or (3) They would use full constituents from the non-agglutinative language in order to avoid using agglutinative inflection on single nouns and verbs of foreign origin when expressing their grammatical functions" (p. 19). As maintained by Backus (1986) already existing patterns of CS in the language pairs with an agglutinative and non-agglutinative language in the form of bound morpheme affixation in CS literature rule out the last two assumptions.

1.2. The Equivalence Constraint

The Equivalence Constraint of Poplack concerns the word order equivalence. Poplack (1980) formulated the constraint as follows: "Code-switches will tend to occur at points in discourse where juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language. According to this simple constraint a switch is inhibited from occurring within a constituent generated by a rule from one language which is not shared by the other" (p. 586).

What this means is that switches of codes tend to occur at points where there is a match between the syntactic rules of the two languages and the rules of neither language are violated. Thus a switch should not occur unless the surface structures of two languages are identical referring to the fact that the constraint inhibits switches which show different word orders. For instance in Spanish-English, CS may not take place between nouns and adjectives in the noun phrase since attributive adjectives in English typically precede the head noun while in Spanish they

follow it. By accepting these constraints as norms, Poplack (1981) concluded that that there is a single CS grammar made up of the overlapping grammars of L1 and L2 and "the outer areas where there is no equivalence will tend to be reserved for monolingual segments of discourse" (p. 183). The evidence she proposed for this conclusion was the non-existence of ungrammatical combinations in the L1 and L2 at the 1835 switches she studied.

On the other hand, Di Sciullo, Muysken and Singh (1986) critized the Equivalence Constraint indicating that in order for the constraint to be applicable, there should be categorial equivalence between the languages in a pair. According to them the main weakness of the constraint is that it is formulated in terms of linear sequence, and not on the basis of structural relations. Criticisms of the constraint also came from several CS studies. For instance Berk-Seligson's (1986) study on Spanish-Hebrew CS patterns revealed a great number of ungrammatical constructions e.g. omissions of the definite article required by Spanish before the Hebrew nouns. Bentahila & Davies (1983) in their French-Arabic CS data also reflected the violation of the constraint via the CS that occurred between the subject and the main verb in cases where French declarative sentences necessitate a SVO order of elements and Arabic declarative sentences need an order in the form of VSO. This was further attested in Redouane's (2005) CS study on Moroccan Arabic-French bilingualism which included instances of CS between the subject and the verb.

Halmari (1997) in her study of Finnish-English bilingual discourse revealed other forms of counter-evidence for the Equivalence Constraint by showing CS within adpositional phrases. As she points out, CS would not be expected to take place in such phrases if one of the languages is postpositional (like Finnish) while the other is prepositional (like English) since the order of adjacent elements is different in these languages, but the evidence showed the insertion of single English nouns into postpositional phrases in Finnish utterances as shown in (6) below:

(6) *lunch*in alla

before *lunch*

In a similar vein, Verhoeven (1991) mentioned occurrences of Dutch prepositional phrases in Turkish, another postpositional language.

Other studies providing counter-evidence for the Equivalence Constraint involve different language pairs such as Lingala-French (Bokamba, 1988) or Swahili-English (Myers-Scotton 1988, 1993), English-Japanese (Nishimura, 1997), Japanese-English (Muto, 2013), Romanian-English (Ene, 2007), Khasi-English (Talang-Rao, 2014), Russian-Estonian (Zabrodskaja, 2007). Violations have occurred even between the dialects of the same language as seen in Sabir & Safi (2008), which investigated code-switching between the High Variety or Modern Standard Arabic (MSA) and the Low Variety or the Hejazi dialect (HjD) of Arabic. Yet Portuguese-English analyses of Jalil (2009) provide full support for the validity of the Equivalence Constraint and some other recent studies present data in partial agreement (e.g. Ene, 2007, Talang-Rao, 2014).

All in all, the given samples of violations of both the Free Morpheme and the Equivalence Constraint drove some researchers to suggest that CS is governed by "neither 'ad hoc constraints' nor surface structure equivalence" (Bentahila & Davis 1983: 328). As McSwan (2010) states even if there might be a CS grammar, it still begs an explanation as to why the assumed constraints, the Free Morpheme Constraint and the Equivalence Constraint, look different from the principles or constraints of CS among a wide variety of languages. In the light of these findings, this paper presents a further attempt to analyze whether the intrasentential CS patterns in a Turkish-English bilingual discourse are constrained by the Free Morpheme and the Equivalence Constraint or violate them.

2. Method

2.1. Participants

The data for this study were drawn from the audio-recorded English language lessons in an intensive English class of an English-medium university in Istanbul, Turkey. The class consisted of twenty-four adult L2 learners of English, all of whose native language was Turkish. The student group consisted of both male and female participants who were between 18 and 22 years old and the English teacher was a female Turkish-English bilingual with a teaching experience of fourteen years. The proficiency level of the class was upper-intermediate. The English classroom setting was chosen mainly due to the fact that it is challenging to find Turkish-English CS patterns within the EFL context of Turkey, where the native and the dominant language is Turkish. Also a high proficiency level class with adult learners was chosen for valid and reliable results.

2.2. Data Collection and Analysis

The corpus of the study was formed through nine audio-recorded classroom sessions, which lasted between 45 minutes and an hour. The data were collected through subsequent sessions held weekly by the same teacher in the research setting in a period of five weeks. The classes focused on language instruction via a standardized coursebook for General English as well as writing instruction. The majority of the CS data came from the instruction on writing since in the coursebook-based sessions, the use of the native language was strictly forbidden and it was teacher talk which dominantly constituted the classroom discourse. However, few insertions of Turkish single word items into English sentences were observed and included in the data. Yet, some writing sessions were pre-dominantly Turkish-governed and teacher-led since the students were reported by the teacher not to be familiar with the subject. The teacher covered the subject of writing through a set of instructional materials aiming at teaching the general format of an essay through instructions, examples and relevant activities like writing thesis statements, topic sentences, introductions and / or conclusions for the given pieces of writing. The classroom sessions were observed, audio-recorded and transcribed, which was followed by the extraction of code-switched utterances. The data were linguistically analyzed in terms of CS patterns and their compliance with the Free Morpheme and Equivalence Constraint.

3. Findings

The data generated 97 intrasential switches in total, entirely specified with the process of "insertion" as defined by Muysken (2000). "Insertion" takes place when single lexical items or entire constituents from one language are embedded into a structure from the other language. In the data, the most frequent form of insertion was that of single lexical items and phrases in English into the Turkish utterances.

Table 1. Syntactic categories of Turkish-English intrasentential code-switching

	English in Turkish utterances	Turkish in English utterances	Intrasentential code-switches in total
	N	N	N
Noun	76	3	79
Adjective	7	0	7
Conjunction	0	5	5
Noun phrase modified by adjectives	3	0	3
Post-positional phrase	0	2	2
Adverbial phrase	0	1	1

As presented in Table 1, the single most often switched category was the noun, followed by the single insertion of adjectives, and informal conjunctions (e.g. "yani" meaning "I mean"). Insertions of switched constituents were rather few compared to the insertion of single lexical items. These constituents included English noun phrases modified by Turkish adjectives and Turkish postpositional phrases and adverbial phrases in English utterances.

3.1. Findings about the Free Morpheme Constraint

Affixation of the Turkish bound morphemes to the English noun stems was the most salient intrasentential CS pattern observed in the data. The bound morphemes affixed to the English nouns were inflectional suffixes, namely case, plural, and possessive suffixes. There was no phonological adaptation of the foreign lexical items in the affixation process. Thus, the Free Morpheme Constraint was violated as the data showed many cases where the free morpheme (most frequently English) was attached to a bound morpheme (most often in Turkish) without any forms of phonological adaptation of the former.

3.1.1. Affixation of case suffixes

Turkish case markers are used in the form of a suffix since it is an agglutinative language (Göksel & Kerslake, 2011). The data revealed the affixation of all the Turkish case markers, i.e. the accusative marker, locative marker, dative marker, ablative marker, genitive marker and the instrumental marker to the English nouns, examples of which are given below.

Attachment of the Turkish accusative case marker after an English noun

In (7) below the Turkish accusative marker –i is attached to the English noun stem, *point* twice. After the student asked in English how to use "besides" in an essay, the teacher said:

(7) ikinci pointi söylüyorsun ya ikinci paragrafta besides kullanabilirsin ikinci bir pointi eklerken

you tell the second *point* there in the second paragraph you can use besides while adding a second *point*

In example (8), the student asked the teacher a question by inserting the accusative case marker –i after "listening" and "writing":

(8) hocam listening*i* geçtim, writing*i* geçtim, bir tek reading kaldı diyelim yine de yaz okuluna gelebiliyor muyuz

teacher, let's suppose that I have passed the *listening*, the *writing*, and there is only reading left, can we then attend the summer school

Attachment of the Turkish locative case marker after an English noun

In the following example the teacher asked a question to the class to remind them what they should write in the conclusion paragraph. Here we see the Turkish locative case marker of –da attached to the English noun *conclusion*:

(9) evet *conclusion*da ne vardı

yes what was there in the *conclusion*

The following extract is from a student's utterance, which again exemplifies the use of the locative marker –de after the word *body*, which refers to the body of the essay structure:

(10) hocam *personal comment* yapıyoruz değil mi *body*de

teacher we make *personal comment*s in the *body* don't we

Attachment of the Turkish dative case marker after an English noun

In the example below the teacher gives information about how she checks a paragraph in a student essay. The utterance is marked with the affixation of the Turkish dative case marker –a after the English compound noun *topic sentence*:

(11) paragrafını okuyorum sonra tekrar *topic sentence*a geçiyorum

I read your paragraph then I move on to the *topic sentence*

In example (12), the student attached the Turkish dative case marker –e after the English noun 'essay':

(12) *proverb* dahil edeceğim ben hocam *essay*e

I am going to include a *proverb* in the *essay* teacher

Attachment of the Turkish ablative case marker after an English noun

The following utterances by the teacher show the affixation of the Turkish ablative case marker -den (in the form of –ten and –dan) to the highlighted English nouns, *topic* and *introduction*, respectively:

(13) böyle alakasız şeyler yazarsan ben *topic*ten uzaklaşıyorum
if you write such irrelevant things I get away from the *topic*

(14) bu bölüm *introduction*dan kaldı

this part is left from the *introduction*

Attachment of the Turkish genitive case marker after an English noun

The Turkish genitive marker –ın was found to follow an English noun only in the following utterance of the teacher:

(15) writing *booklet*ın son teslim tarihi perşembe

the deadline for the submission of the *writing booklet* is thursday

Attachment of the Turkish instrumental case marker after an English noun

The Turkish instrumental case marker –la was identified in one sample after a plural suffix as follows:

(16) hocam ben bu *connector*larla kendimi güvende hissediyorum

teacher I feel safe with these *connector*s

3.1.2. Affixation of plural suffixes to the English nouns

In addition to the affixation of Turkish case markers, English nouns were also found to be followed by the affixation of plural markers to the English nouns. In the following utterance of the teacher, the plural suffix –lar is attached to the word *bus* while the teacher is trying to write a sample essay for the students on the board:

(17) yani diyeceksin ki mesela cars are relatively economical erm erm economical değil çok da car ama mesela şey için kullansak *bus*lar evet *bus*lar olur bak

well, you will say for example cars are relatively economical erm, erm cars aren't that economical though for instance if we use it for *bus*es yes look *bus*es fit there

In the following sample, the teacher while paraphrasing an English sentence in a sample essay about the subject of 'cats as house pets' is seen to have attached the Turkish plural suffixes to all the English nouns in the utterance:

(18) dog *lover*lar da *cat*lerin ideal *pet*ler olduklarına inanabilirler yani değil mi

*dog lover*s may also believe that *cat*s are ideal *pet*s well isn't that possible

There was also one English plural suffix found to have been attached to a Turkish noun as seen in (19):

(19) so you end the paragraph by emphasizing the significance of *destek*s

The word "destek" means "support" and the teacher refers to the supportive statements the essay writer should use to justify his thesis.

3.1.3. Affixation of possessive suffixes to the English nouns

The data also revealed the attachment of the Turkish possessive suffixes to the English nouns to indicate the possessor of the thing in the form of –ım (for the first person), -ı (for the third person singular), and -ınız (for the second person plural) as can be seen in (20), (21) and (22) respectively. (20) and (21) were uttered by the teacher, (22) by a student:

(20) *topic sentence*ıma more yazdım diyelim

let's assume that I wrote more in my *topic sentence*

(21) mesela zoru biliyoruz hocam ama *synony*mini bilmiyoruz can we use not
easy mesela instead of difficult for not repeating
for example we know zor (difficult) teacher but we don't know its *synonym* can we use not easy for instance for not repeating

(22) thesis statementlarınızı açık kılın

make your *thesis statement*s clear

3.2. Findings about the Equivalence Constraint

The data revealed some forms of juxtapositions where L1 and L2 elements did not violate the syntactic rule of the either language. These forms were seen in the form of noun clauses modified by adjectives. As the surface structure of English and Turkish is the same in such clauses in which adjectives precede the noun phrase, the modified noun phrases in the switched form can be taken as a support for the constraint. (23) shows the use of the Turkish adjective 'genel'(=general) modifying the English word 'essay' in a teacher-student interaction:

(23) Student: hocam argumentative essay mi bizim bu çalıştığımız

Teacher: genel *essay*

Student: genel *essay*

Student: teacher is the essay we are working on the argumentative essay

Teacher: general *essay*

Student: general *essay*

(24) below shows another example similar to (22) which reveals the use of Turkish adjectives "akışkan/fluent" and "net/clear" to modify the English compound noun 'topic sentence':

(24) akışkan net *topic sentence*lar istiyorum sizden

I want you to write fluent clear *topic sentence*s

On the other hand, the Equivalence Constraint was violated by the use of Turkish postpositional phrases in English utterances. Since English makes use of prepositional phrases, a switch from English to Turkish at the point of a prepositional phrase in an English utterance would not be expected to occur according to the Equivalence Constraint, but it did, as seen in (24) and (25):

(24) in the conclusion paragraph you give a summary of the above also you give a recommendation advice or warning *son cümlede arkadaşlar*

in the conclusion paragraph you give a summary of the above also you give a recommendation advice or warning *in the last sentence guys*

(25) so what is your homework *perşembe için*

so what is your homework *for thursday*

These examples show that the Equivalence Constraint did not hold true for the use of Turkish postpositional phrases in English.

Another sample of violation of the Equivalence Constraint was witnessed in an English utterance where the point of switch to Turkish was an adverbial phrase. As there is an asymmetry in the linear structures of adverbial phrases between English and Turkish, such a sample can also be taken as evidence for the violation of the Equivalence Constraint.

(26) cats will even fetch things *dogların yaptığı gibi*

cats will even fetch things *as the dogs do*

As a result, as shown by the data, The Free Morpheme Constraint was violated in all forms. The Equivalence Constraint, on the other hand, was violated in the forms where Turkish postpositional and adverbial phrases were inserted into English utterances. The participants were found to partially adhere to the Equivalence Constraint through their switches in the noun phrases modified by adjectives.

4. Discussion

This paper has attempted to test the validity of two linguistic constraints, the Free Morpheme Constraint and the Equivalence Constraint on CS between two languages, Turkish and English, which are highly divergent from each other in syntactical sense.

Testing the Free Morpheme Constraint through the analyses of various CS samples in the data resulted in substantial evidence against the claimed universality of the Free Morpheme Constraint. As shown by the data, the dominant form of intrasentential CS was the attachment of typical Turkish inflectional suffixes, the case, the plural and the possessive, to English nouns. The case markers were seen in several forms as evidenced by the affixation of accusative, dative, locative, ablative, instrumental and genitive markers to English nouns. Plural markers found after not only English but also Turkish nouns also attest the invalidity of the constraint. Besides, the existence of possessive markers attached to English nouns in various forms is the last form of morphological counter-evidence in our data refuting Poplack's (1980) well-known claim that bound morphemes in one language can't be attached to the free morphemes in another language.

The second allegation of Poplack (1981) within the Free Morpheme Constraint that the free morpheme should be phonologically integrated into the language of the bound morpheme in order that CS could take place does not hold true at all for the data studied since no form of phonological adaptation was found in the noun stems to which bound morphemes were conjoined. The findings are in line with those in CS literature that showed counter-examples against the Free Morpheme Constraint (e.g. Backus, 1986; Boeschoten & Verhoeven, 1987; Bokamba, 1988; Chan, 1999; Clyne, 1987; Ene, 2007; Jake, Myers-Scotton and Gross, 2002; Nartey, 1982; Muto, 2013; Myers-Scotton, 1993; and Turjoman, 2016). This study also substantiates the hypothesis of Backus (1986) that the language pairs with an agglutinative language would ignore the Free Morpheme Constraint.

As for the Equivalence Constraint the data revealed partial agreement as in some studies like Ene (2007) and Talang-Rao (2014). The concordance was seen in the switches at English noun phrases modified by Turkish adjectives. The adjectives are followed by nouns in both languages so one can say that depending on the Equivalence Constraint switches occurred at the adjective points where there was linear equivalence between two languages.

However, CS was also instantiated at points where Turkish and English present non-linear equivalences, such as the insertion of a postpositional phrase into an utterance in English, a prepositional language. Also although the order of elements in the adverbial phrase differs in two languages, it was found that a Turkish adverbial phrase was inserted into an English utterance. These occurrences violating the Equivalence Constraint are in concordance with Verhoeven's (1991) Dutch-Turkish CS analyses and Halmari's (1997) study of CS on Finnish-English bilingualism. As those studies also analyzed language pairs with non-linear sequences in various forms, it is possible to conclude that constraints not based on linear relations are necessary for the further analyses of CS since there are many language pairs which have asymmetrical syntactical structures and Turkish and English is only one of them.

5. Conclusion

In conclusion, through multivariate CS patterns, this study has shown that the Free Morpheme Constraint simply does not hold when Turkish and English are concerned in a language pair since it does not take the typological differences between the languages into account. As for Equivalence Constraint, the data have revealed both concordances and violations resulting in the partial consistency of the Turkish-English discourse with the given constraint.

The findings have revealed that the given grammatical constraints on CS, namely the Free Morpheme Constraint and the Equivalence Constraint cannot be universally applicable. Also this study has certain implications about the varied and complex nature of CS unveiling the fact that CS cannot be merely explained by fixed universal linguistic rules. Although there may be some grammatical constraints in CS displaying some general tendencies, one must know that CS is a rather complicated and sophisticated matter constantly shaped and reshaped by interlocutors with varying sociolingual backgrounds, L1s, and variations in English use in accordance with the dynamics of the social context. Thus CS is an interdisciplinary issue that should be studied in terms of not only linguistic but also sociolinguistic factors.

This study is the first of its kind in testing the Turkish-English language pair in terms of the applicability of the Free Morpheme Constraint and the Equivalence Constraint and it is suggested that further studies with the same language pair in different social settings and in larger scopes be conducted to test the validity of the given constraints. Also further research should focus on other linguistic and sociolinguistic factors and issues that account for Turkish-English CS.

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