English Consonant Pronunciation Errors of First Year Students at Posts and Telecommunications Institute of Technology

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Abstract

This study was conducted to find out pronunciation errors of English consonant sounds produced by first year students at Posts and Telecommunications Institute of Techology in Vietnam. 120 audio recordings of 120 different students who were studying English Course 1 were used to identify the errors. The results show that students had problems with both single consonant and consonant cluster pronunciation. Their errors included replacing difficult unfamiliar sounds in English with familiar sounds in Vietnamese, omitting sounds in clusters and adding redundant sounds. Those findings definitely help teachers and students get better understanding of pronunciation errors so that they can have solutions to improve learners' English pronuncation.

Key words: consonant sounds, consonant clusters, pronunciation errors.

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I. Introduction

Language is considered the most important and effective means of communication in human society. People coming from different countries with different cultures can communicate and understand each other better if they share a common language. Currently, in the context of globalization, English is used as an international language in almost all fields. For this reason, English has become a compulsory subject taught in most schools in Vietnam, from primary to tertiary education.

Vietnamese students graduating from universities are required to achieve the third level (B1) in the Common European Framework of Reference (CEFR). The CEFR says that learners at B1 level can "understand the main points of clear standard input on familiar matters regularly encountered in work, school, etc; deal with most situations likely to arise whilst travelling in an area where the language is spoken; produce simple connected text on topics which are familiar or of personal interest; describe experiences, events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans". In order to help students reach the required standard, the English curriculum has been designed with the objective of developing their communicative competence in the target language. This is also the goal of teaching and learning English at Posts and Telecommunications Institute of Techology (PTIT). However, according to our observations, students' communicative activities in English are not as effective as expected. There are a number of causes for this, one of which is students' pronunciation errors, especially those of consonant sounds. These errors make it difficult for listeners to understand the messages speakers are trying to convey, which leads to the failure of the communication process. In an endeavour to help PTIT first year students improve their English pronunciation, we conducted this study to find out their common consonant pronunciation errors.

II. Literature Review

Pronunciation and pronunciation errors

Setter and Jenkins (2004) stated that "pronunciation involves the production and perception of segmentals (sounds), both alone and in the stream of speech, where they undergo a number of modifications and interact with suprasegmental (prosodic) features, particularly stress and intonation". According to Yates & Zielinski (2009), pronunciation refers to how the sounds are produced. We use these sounds to make meaning when we speak. Pronunciation includes the particular consonants and vowels of a language (segments), aspects of speech beyond the level of the individual segments, such as stress, timing, rhythm, intonation, phrasing, and voice quality.

Pronunciation is very important because speakers with good pronunciation will be understood even if they make errors in other areas. Those with wrong pronunciation will be unintelligible, even if they have expressed themselves with an extensive vocabulary and perfect grammar (Yates & Zielinski, 2009). When speakers produce words using the wrong sounds or produce sentences using the wrong prosodic features, they

make pronunciation errors. These errors are inevitable, especially with new learners of any language and they must be paid attention to so that learners can make improvements in studying that language.

Consonants

Phonetically, consonants are sounds made by a closure or narrowing in the vocal tract so that the airflow is either completely blocked, or so restricted that audible friction is produced. From a phonological point of view, consonants are those units which function at the margins of syllables, either singly or in clusters (Crystal, 2008). According to Kelly (2000), consonants are formed by interrupting, restricting or diverting the airflow in a variety of ways. He suggested that consonant sounds can be described based on three characteristics: the place of articulation, the manner of articulation, and voicing. The place of articulation refers to the location at which two speech organs approach or come together in producing a sound. The manner of articulation refers to the interaction between the articulators and the airstream. In terms of voicing, sounds produced while the vocal folds are vibrating are voiced sounds; those produced with no such vibration are voiceless or unvoiced. These are the features to identify and distinguish consonant sounds in a language.

English consonants

Kelly (2000) stated that we use 21 consonant letters when writing in English and 24 consonant sounds when speaking English. The consonant sounds are described in the following table (Roach, 2009):

Table no 1: English Consonant Phonemes								
Place of articulation	Bilabial	Labio-	Dent	Alveolar	Palato-	Palatal	Velar	Glottal
		dental	al		alveolar			
Manner of articulation								
Plosive	p, b			t, d			k, g	
Fricative		f, v	θ, ð	s, z	∫, 3			h
Affricate					f, dz			
Nasal	m			n			ŋ	
Lateral approximant				1				
Approximant	w	,			r	i		

With regard to the manner of articulation, consonant sounds can be explained as follows (Kelly, 2000):

- Plosive: a complete closure is made somewhere in the vocal tract, and the soft palate is also raised. Air pressure increases behind the closure, and is then released exlosively, e.g. /p/ and /b/. The most noticeable difference between initial /p, t, k/ and /b, d, g/ is the aspiration of the plosives /p, t, k/, especially when they are at the beginning of a word.
- Fricative: when two vocal organs come closer enough together for the movement of air between them to be heard, e.g. /f/ and /v/.
- Affricate: a complete closure is made somewhere in the mounth, and the soft palate is raised. Air pressure increases behind the closure, and is then released more slowly than in plosives, e.g. /tf/ and /dʒ/.
- Nasal: a closure is made by the lips, or by the tongue against the palate, the soft palate is lowered, and air escapes through the nose, e.g. /m/ and /n/.
- Lateral approximant: a partial closure is made by the blade of the tongue against the alveolar ridge. Air is able to flow around the sides of the tongue, e.g. /l/.
- Approximant: vocal organs come near to each other, but not so close as to cause audible friction, e.g. /r/ and /w/.

With regard to the place of articulation, the main movements of the articulators are described as follows (Kelly, 2000):

- Bilabial: using closing movement of both lips, e.g. /p/ and /b/.
- Labio-dental: using the lower lip and the upper teeth, e.g. /f/ and /v/.
- Dental: the tongue tip is used either between the teeth or close to the upper teeth, e.g. $/\theta$ / and $/\delta$ /.
- Alveolar: the blade of the tongue is used close to alveolar ridge, e.g. /t/ and /s/.
- Palato-alveolar or post-alveolar: the blade (or tip) of the tongue is used just behind the alveolar ridge, e.g. /tʃ/ and /dʒ/.
- Palatal: the front of the tongue is raised close to the palate, e.g. /j/.
- Velar: the back of the tongue is used against the soft palate, e.g. /k/ and $/\eta/$.
- Glottal: the gap between the vocal cords is used to make audible friction, e.g. /h/.

Voiced and lenis (weak) consonant phonemes are /b, d, g, d \mathfrak{Z} , v, \mathfrak{F} , z, \mathfrak{Z} , m, n, \mathfrak{H} , l, r, j, w/. The other consonant phonemes are unvoiced and fortis (strong).

Consonant positions

According to Roach (2009), English consonants can occur at the beginning of a word (initial position), between other sounds (medial position) and at the end of a word (final position). In terms of syllables, they can be in initial and final positions. English words begin with a single consonant, for example:

```
        /p/: pay /pei/
        /b/: beg /beg/

        /t/: tie /tai/
        /d/: dog /dvg/

        /k/: key /ki:/
        /g/: girl /gs:l/

        /f/: fine /fain/
        /v: vase /va:z/

        /θ/: thumb /θ Am/
        /ð/: this /ðis/

        /s/: six /siks/
        /z/: zoo /zu:/
```

Words can begin with two or more consonants together, which are called a consonant cluster. There are two sorts of initial two-consonant clusters in English. One sort is comprosed of /s/ followed by one of nine consonants /p, t, k, f, m, n, l, w, j /. The /s/ in these clusters is called the pre-initial consonant and the other consonant is called the initial consonant. When one of /p, t, k/ is preceded by /s/, it is not aspirated. For example:

```
/s/ + /p/: space
                             /speis/
                                                          /s/ + /t/: stone
                                                                             /stəun/
/s/ + /k/: skin
                   /skm/
                                                /s/ + /f/: sphere /sfiər/
/s/ + /m/: smell
                   /smel/
                                                /s/ + /n/: snow
                                                                    /snao/
/s/ + /l/: slim
                   /slim/
                                                /s/ + /w/: swim
                                                                   /swim/
/s/ + /j/: suit
                   /sju:t/
```

The other sort begins with one of a set of about fifteen consonants, followed by one of the set /l, r, w, j/. We call the first consonant of these clusters the initial consonant and the second the post-initial. For example:

```
/p/ + /l/: place /pleis/ /t/ + /w/: twin /twin/
/k/ + /w/: quite /kwait/ /b/ + /r/: brick /brik/
/d/ + /j/: due /dju:/ /g/ + /r/: grey /qrei/
```

English words can begin with a three-consonant cluster including /s/ as the pre-initial consonant, /p, t, k/ as the initial consonant and /l, r, w/ as the post-initial. For example:

```
/s/ + /p/ + /l/: split /split/ /s/ + /p/ + /r/: spring /sprin/ /s/ + /t/ + /r/: strong /stron/ /s/ + /k/ + /w/: square /skweər/
```

Concerning the final position, when there is one consonant only, this is called the final consonant. Any consonant may be a final consonant except /h, w, j/. For example:

```
/p/: sheep
                /ʃi:p/
                                                     /b/: rub
                                                                   /r_{\Lambda}b/
/t/: eat
               /i:t/
                                                     /d/: thread /θred/
/k/: speak
              /spi:k/
                                                     /g/: egg /eg/
                                                     /v/: live
/f/: leaf
              /li:f/
                                                                  /liv/
/\theta/: earth
              /3:\theta/
                                                     /ð/: breathe /bri:ð/
/s/: stress /stres/
                                                     /z/: these /ði:z/
```

There are two sorts of final two-consonant clusters, one being a final consonant preceded by a pre-final consonant and the other a final consonant followed by a post-final consonant. The pre-final consonants form a small set: /m, n, η , l, s/. The post-final consonants also form a small set: /s, z, t, d, θ /. For example:

```
/n/ + /t/: sent / sent/ /p/ + /t/: opt /vpt/
/n/ + /d/: and /ænd/ /d/ + /z/: beds /bedz/
/m/ + /p/: dump /dxmp/ /t/ + /s/: bets /bets/
```

There are two types of final three-consonant clusters. The first is pre-final plus final plus post-final as in *helped* /helpt/. The second is final plus post-final 1 plus post-final 2 as in *next* /nekst/. Most four-consonant clusters consist of a final consonant preceded by a pre-final and followed by post-final 1 and post-final 2 as in *prompts* /prompts/.

English consonant sounds and spelling

As mentioned above, in English, there are 21 consonant letters making 24 consonant sounds. Kelly (2000) made a list of consonant letters which have one main sound association, including b - /b/, d - /d/, f - /f/, h - /h/, j - /dz/, k - /k/, l - /l/, m - /m/, n - /n/, r - /r/, v - /v/, w - /w/, z - /z/. He noted that some of these letters do have alternative sounds, but they are restricted to one or two words, like the /v/ sound of f in of. There are cases of two or more letters representing one sound in a word, such as ng - /n/, ph - /f/, sh - /f/, tch - /ff/. Some consonant letters appear in spellings, but they are not actually pronounced, for example: b in climb, c in scene, d in sandwich, h in hour, l in half, k in know, n in autumn, etc. They are called "silent" consonants. Some consonants can be pronounced in different ways which can be illustrated in the following table:

Table no.2: Consonants with different pronunciations

Letters	Sounds	Examples
С	/k/	cat
	/s/	cinema
	/ʃ/	delicious
g	/g/	go
	/dʒ/	gym
	/3/	mirage
s	/s/	sun
	/ z /	present
	/ʃ/	pension
	/3/	vision
t	/t/	too
	/ʃ/	information
	/ t f/	picture
X	/ks/	fix
	/gz/	exam
	/ z /	xylophone
ch	/ʧ/	change
	/k/	character
	/ʃ/	machine
gh	/g/	ghost
	/f/	cough
qu	/kw/	queen
	/k/	antique
th	/θ/	theater
	/ð/	brother
wh	/w/	what
	/h/	whole

With the illustration above, it is notable that the same letter does not always represent the same sound and the same sound is not always represented by the same letter. This may cause difficulties and confusion for those who learn English as a foreign language.

Vietnamese consonants

According to Doan (2003), there are 22 initial consonants in Vietnamese which are classified into groups as shown in the following table:

Table no.3: Vietnamese initial consonants

Tuble nois: 1			Vietnamese mittar consonants					
Place of articulation			Labial	Alveolar	Alveo- palatal	Palatal	Velar	Glottal
Manner of articulation								
	Aspirated			ť'				
Plosive	Un-aspirated	Voiceless		t	t	С	k	3
		Voiced	b	d				
	Nasal		m	n		л	ŋ	
	Voiceless		f	S	8			h
Fricative	Voiced		v	z	Z,		Y	
	Lateral			1				

Apart from 22 initial consonants, there are 8 ending consonants including 6 consonants: /p, t, k, m, n, n/ and 2 semi-consonants: / $\frac{1}{2}$, $\frac{1}{2}$ / (which have both features of not only vowels but consonants as well).

Some distinctive differences between Vietnamese and English consonant sounds which should be taken into consideration when studying English consonant pronunciation of Vietnamese learners are:

- There are no dental fricatives $/\theta$ /, $/\delta$ /; no palato-alveolar affricates /tf/, /dt/; and no palato-alveolar fricative /tf/ in Vietnamese.
- The English sounds /p, t, k/ are aspirated in initial position while /p, t, k/ are unaspirated in Vietnamese.
- There are no consosant clusters in Vietnamese words, but clusters of 2 4 consonants do exist in English.

The characteristics of consonant sounds in English and Vietnamese presented above are used as a basis to identify students' English consonant pronunciation errors in this study.

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III. Methodology

The study was carried out to answer the following question: What are the common English consonant pronunciation errors made by first year students at PTIT?

To get data for the research, we randomly selected 4 English groups of first year students, with an average of 35 students each. They had just finished English Course 1 (equivalent to CEFR level A2) and were preparing for the end-of-course test including listening, speaking, reading and writing skills. All participants were given a detailed explanation of the purpose of the study, how it would be conducted, and we promised that their information would be kept confidential and used for research purposes only. We gave them a list of single words and short sentences selected from the textbook they were using in the class. This list included one or two-syllable words with a single consonant or a consonant cluster at the beginning and/or at the end of the words and a question about their hometowns. Students were provided with a link to the flipgrid.com website. This is a free video discussion platform from Microsoft that allows everyone to give their answers by recording video clips. All participants logged in Flipgrid by their emails, used the audio/ video recording button to record their voice reading aloud the given words, and finally uploaded their videos or audio files on Flipgrid's archive. After receiving 120 recordings from 120 students, we listened to them carefully, compared their pronunciation with native-speakers', and noted down the mistakes they made, only focusing on consonant sounds. Statistical methods allowed us to determine the percentage of students' consonant pronunciation errors.

IV. Findings and Discussion

Pronunciation errors of initial single consonants

The results of the study show that only a few mistakes were made when students pronounced the consonant sounds /b/, /d/, /f/, /v, /s/, /h/, /m/, /w/ in initial position. We believe that students did not have a lot of difficulties pronouncing these sounds because they exist in the Vietnamese consonant system and these sounds in the two languages have quite similar characteristics. For other consonants, the error rates are illustrated in the table below:

Consonant sounds	Error frequency	Percentage	
/ʃ/	67	56%	
/3/	67	56%	
/tʃ/	61	51%	
/d3/	61	51%	
/ð/	49	41%	
/0/	47	39%	
/t/	45	38%	
/k/	40	33%	
/p/	35	29%	
/g/	33	28%	
/j/	32	27%	
/z/	30	25%	
/r/	25	21%	
/n/	20	17%	
/1/	15	13%	

Table no.4: Pronunciation errors of initial single consonants

The percentages of students making pronunciation errors with the consonant sounds /ʃ/ and /ʒ/ were highest, with 56% for each. They tended to pronounce the unvoiced palato-alveolar fricative /ʃ/ as the unvoiced alveolar fricative /s/, the voiced palato-alveolar fricative /ʒ/ as the Vietnamese voiced alveolar fricative /z/. For example, the words sugar / $\log r$ and vision / vizon/ were pronounced as / sugar/ and / vizon/. We believe the cause of this error lies in the fact that our language does not have these consonant sounds, students usually replace the unfamiliar sounds /ʃ/ and /ʒ/ with the familiar sounds /s/ and /z/ existing in Vietnamese.

Both the sounds /tʃ/ and /dʒ/ were mispronounced by 51% of the students. It is not surprising that those who made mistakes in pronouncing /tʃ/ also had problems with /dʒ/ as they have the same manner and place of articulation. These sounds are palato-alveolar affricates which does not exist in the students' mother tongue. Moreover, /tʃ/ is slightly aspirated in word-initial position, which is also difficult for Vietnamese speakers to pronounce correctly, therefore, Vietnamese sounds /c/ and /z/ were used in place of /tʃ/ and /dʒ/ respectively.

Around 40% of students mispronounced the consonant sounds $/\delta/$ and $/\delta/$, for example in the words therefore /'ðeəfɔ:r/ and think / θ mk/. These are dental fricative consonants which cause difficulties for Vietnamese learners as there are no dental consonant sounds in their language. When pronouncing these sounds, speakers tended to replace $/\delta/$ with Vietnamese /z/ and $/\delta/$ with Vietnamese /z/ with Vietnamese /z/ and $/\delta/$ with Vietnamese /z/ with

The group of aspirated plosive consonants /t, p, k/ in words like tight /taɪt/, pack /pæk/ and kite /kaɪt/ were also not easy. Although both languages have plosives, students still had problems with pronouncing these

initials because Vietnamese /t, p, k/ are not aspirated. They pronounced the word pack /pæk/ as /bæk/, tight /taɪt/ as Vietnamese unaspirated /t/ + /aɪt/ and kite /kaɪt/ as Vietnamese /k/ + /aɪt/.

The consonant sound /g/ in girl /g3:l/ and guide /gaɪd/ was also incorrectly pronounced by 28% of the participants. This English sound is represented as a velar plosive. Students mispronounced this consonant due to the lack of the plosive /g/ in Vietnamese, and they used their first language's velar fricative /\footnote{V}/ instead.

Other consonant sounds like /j/, /z/ and /r/ were also problematic for around one-fourth of those participating in this study. The palatal approximant consonant /j/ in young /jʌŋ/ and yours /jɔːz/ was replaced with Vietnamese /z/ sound, an alveolar fricative. The alveolar fricative /z/ in zoo /zu:/ and zipper / zɪp.ər/ was pronounced like Vietnamese /z/, the sound of the same place and manner of articulation but with a weaker air stream. This sound was also used in the place of the palato-alveolar approximant /r/ in right /raɪt/ and raise /reiz/.

Consonants /n/ and /l/ are a very special pair which were mispronounced due to the effect of the students' mother tounge pronunciation. The speakers making errors with these two consonants can not distinguish between /n/ and /l/ even when speaking Vietnamese. According to the answers to the question of the hometown, these students mainly come from Northern provinces of Vietnam such as Hai Phong, Hai Duong, Bac Giang, Bac Ninh, Nam Dinh, etc.

Pronuncitation errors of initial consonant clusters

In this study, only a few typical cases of initial consonant clusters, not all the possibilities of combining consonants, were used to test the students' pronunciation. After analyzing, we found that they tended to omit consonant sounds or "syllabicate" consonant clusters. Some examples are given below.

Two-consonant clusters such as /sm/ (small /smɔːl/), /θr/ (throw /θrəʊ/), /fl/ (flight /flaɪt/), /br/ (breathe /briːð/), /cl/ (climb /klaɪm/), /dr/ (drink /drɪŋk/), /pl/ (plastic / plæstɪk/), etc. were difficult for students. 32% did not pronounce these clusters correctly when they were at the beginning of the syllable/word. A combination of two consonants is correctly pronounced by starting with the first one followed by the second, therefore, the combination normally has the characteristics of both consonants in the cluster. However, many students did not fully pronounce the two sounds, for example, the word small was pronounced as /mo:l/. Another mistake was that they added the vowel /ə/ after the first consonant, as a result, the words above were pronounced as /səmɔ:l/, /θərəʊ/, /fəlaɪt/, /bəriːð/. The same errors were realized in students' pronunciation of a word beginning with a three-consonant cluster in the list, spring /sprin/. It can be said that the correct pronunciation of consonant clusters at the beginning of syllables like these is not easy for students because there is no similar phenomenon in Vietnamese.

Pronunciation errors of final consonants

With final consonant pronunciation, we divided the errors made by students into three categories, based on Ha (2005), as shown in the table below:

Table no.5: Pronunciation errors of final consonants					
Errors	Error frequency	Percentage			
Sound obmission	52	43%			
Sound confusion	30	25%			
Sound redundancy	28	23%			

It can be seen from the data in Table 5 that the most common mistake was omitting the final cosonant sounds. It is easy to explain why ending sounds were not included in students' pronunciation. It is the fact that speakers do not have to pronounce ending sounds when they speak Vietnamese. Because of omitting the final consonant sounds, they pronounced word light /laɪt/ exactly the same as life /laɪt/. In addition, some sounds like /ʒ, dʒ, tf/ not existing in Vietnamese are difficult to pronounce for Vietnamese learners, especially when they appear at the end of words as in garage / 'qæra:z/, bridge /bridz/ and watch /wpt[/. Students tended to skip them to make it easier and faster for them to pronounce the words. Regarding the omission of final consonant cluster sounds, it can be explained that the way to control the speech organs from one sound to another is not familiar to Vietnamese speakers because there are no consonant clusters in Vietnamese. For example, with the word dentist /'dentist/, some students produced only one sound /s/ or /t/; with the word find /faind/, they omitted /nd/ or /d/ and pronounced it as /fai/ or /fain/.

Another error found in students' recordings was pronouncing final consonants incorrectly. The pair of the most frequently mispronounced consonants were /s/ and /z/. The former fricative needs to be said with greater force than the latter one, however, students tended to make the sound /z/ the same as /s/ in most words like raise /reiz/, yours /jo:z/, says /seiz/, etc. Some other final consonants which also caused great difficulties for them were $\frac{\partial}{\partial t}$ and $\frac{\partial}{\partial t}$. For example, the word *breathe* $\frac{\partial}{\partial t}$, the final sound $\frac{\partial}{\partial t}$ was replaced with $\frac{\partial}{\partial t}$, $\frac{\partial}{\partial t}$ Vietnamese /t'/. It is probable that students guessed how to pronounce this sound based on the spelling -th- in the word. With the final /l/, some students skipped it or changed it into the sound /n/, for instance, the words girl /g3:1/ and call /k5:1/ were read aloud as /g3:n/ and /k5:n/.

The last mistake related to final consonant pronunciation was sound redundancy. As mentioned above, when pronouncing the initial consonant cluster, several students often added the vowel sound /ə/ after the first consonant and the same error also occurred with the consonant sounds at the end of the syllable, especially /z/ and /v/. For example, the words is /iz/ in "This is Jack Hill" and have /hæv/ in "We have some sports news" were pronounced as /izə/ and /hævə/. In addition, the list we provided the participants included some words with silent consonants, but they still tried to pronounce these sounds quite clearly such as comb /kəom/ as /kəomb/, climb /klaım/ as /klaımb/. With this mistake, the cause is that students did not refer to the phonetic transcriptions in the dictionary although this is an extremely necessary thing to do when they practice pronunciation.

V. Conclusion

The results of this study show that the most difficult initial consonant sounds for PTIT's first year students with more than 50% mispronouncing were /(/, /ʒ/, /t[/, /dʒ/. They had a tendency to replace these sounds with more familiar sounds which exist in Vietnamese. Initial consonant clusters also caused big problems for these students as some of them either skipped one consonant sound in the clusters or added redundant vowel /ə/ between two consonants. With regard to final consonants, three types of errors found in the research were not producing necessary ending sounds, producing wrong ending sounds and adding the vowel /ə/ to some final consonants. The study also proves that students' first language pronunciation has a great influence on their second one as they replaced English strange and difficult consonant sounds with the sounds they use everyday in Vietnamese.

Based on the research's results, we suggest that teachers should pay more attention to assisting students with English pronunciation in every lesson. Teachers need to provide students with some basic knowledge of phonetics and phonology, especially the manner and place of articulation of frequently mispronounced consonant sounds. In some specific cases, comparisons of consonant sounds in English and Vietnamese are very necessary to help learners distinguish the ways of producing sounds between the two languages. More importantly, it is advisable to instruct learners how to self-practice pronunciation and provide them with useful materials or sources for this activity.

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