КОМПАРАТИВИСТИКА

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ENGLISH BORROWINGS IN RUSSIAN AND PERSIAN: A COMPARATIVE STUDY ON PETROLEUM TERMINOLOGY

M. Faal-Hamedanchi

Medling s.r.o
Papírová 525, Liberec, Czech Republic, 460 01

The article reviews language borrowing as a cause of denominative variation in terminology and applies a descriptive and comparative approach to identify which roles receptor languages play in employment and adaptation of foreign terms.

Key words: language borrowing; petroleum terminology; calques, semantic borrowing; neologism; Persian; English; Russian.

INTRODUCTION

Borrowing is defined as the introduction of phonological, morphological, lexical, and syntactic items from one language or variety into another. The attitude of each language toward borrowing varies depending on its structure, social and cultural sphere and even language policy, which is in practice in the society.

English borrowings take different forms in Russian and Persian. Some words are adopted in form and sense, others are expressed in words (calques), moreover, new lexical items or meanings may be created to describe English words (neologisms).

English, Russian and Persian are members of the Indo-European family. They are still significantly distinct languages in grammar, vocabulary, pronunciation, writing systems etc. Due to this fact, Russian and Persian languages maintain different attitudes toward new terms and expressions.

This study reviews Persian and Russian oil and gas terminology system and the attitudes of both languages toward borrowing in choices of lexicons, morphemes, translation and abbreviations, from English as the donor language,

1. LEXICAL BORROWINGS

The simplest (and therefore most common) borrowings are lexical or vocabulary borrowings. As to English, loanwords are called 'Anglicism', or items taken from Eng-

lish without any modification. “While discussing borrowings from English, we have to keep in mind that the English lexicon itself contains a high degree of loanwords. Thus, while some words are borrowed directly, others are received in an already altered form. In many cases, these are international terms or words present in many languages” [8].

In Persian terminology, Anglicisms are envisaged in two different forms: in English scripts and in Persian letters. English scripts are mostly applied in scientific literature. The motivation for this choice may be for some reasons of prestige but also for the communicative effectiveness and the lack of Persian script precision, as well. Persian writing system is a Perso-Arabic script and short vowels are not marked in written texts, which results in different possibilities of pronunciation. For instance, both words ‘oil’ and ‘ill’ are transliterated in the same way as *ail*. This causes ambiguity, which is not admissible in a scientific text.

In addition, the lack of adapted standards and precise script result in graphic variations. For instance, both transliteration and transcription are in practice, thus the name of a single chemical element or compound may be written in several ways. For example [6]:

(1) *mtanl* or *mtanvl* ‘methanol’;

(2) *Almynyvm* or *Alvmynyvm* or *Almynym* or *Alvmynym,* ‘aluminium’ [alominiom].

To prevent ambiguity some authors use footnotes in order to give the English variation.

The English script in Russian scientific text is not as common as in Persian. The Russian writing system, although differs from that of English, involves less ambiguity in transcribing English words for example, *дивертер* ‘diverter’ [divertər].

The process of borrowing usually does not end to this and loanwords undergo incorporation into the phonological and morphological system of the receptor language. In choice of Persian, the adaptation normally occurs in Persian script, although some form of adaptation of English script may be observed, for instance the morpheme *ha* may be applied with English writing to make plural form, but it is very rare and unappealing, for example, *UFO-ha*.

1.1. *Phonological adaptation.* Almost no loanword can be found in Russian or Persian, which has not undertaken some extents of adaptation. The first step of adaptation occurs in stress (accent) pattern. Naturally, the ways stress manifests itself in the speech stream are highly language dependent. Persian language has fixed stress. That is, stress is placed always on a given syllable. For nouns, adjectives, and most adverbs, the stress is word-final, for example:

(3) noun: *fyzyvlvjy* ‘physiology’ [fiziolɔʒi'];

(4) adjective: *fyzyky* ‘physical’ [fiziki'];

(5) adverb: *Ahsth* ‘slowly’ [aheste'h].

While in Russian the stressed syllable may change even in different cases of certain nouns, for example, *земли́* [zimli'] (the genitive case for ‘the Earth’, ‘land’ or ‘soil’) and *зе́мли* [ze'mli] ‘lands’. Thus, adaptation to the stress system of the Russian language manifests a more complicated pattern, which is out of the subject of this article and requires a separate article.

The phonological adaptation is complicated as well in case of vowels both in the Persian and Russian languages. The patterns even vary within a single language for different dialects and regional accents. For instance, the vowel æ in Persian word *dr* [dær] 'door' is pronounced roughly like *a* in the English word *bad*. The difference lies in the *∂*-glide (movement of the tongue to a neutral position) that follows the English sound. The Persian æ is not followed by this glide [1]. Occurrence of the vowel æ in Russian can be compared with the sound of я in word пять [pæt'] 'five', an allophone of *a* between palatalized consonants. However, both Russian and Persian intend to convert the sound æ in a loanword to *a*, for example:

(6) *faktvr* [faktor]; *фактор* 'factor' [faktər];
(7) *parall* [paralel]; *параллель* 'parallel' [pəralel'].

Other vowels also undertake some extents of adaptation, regarding the phonological system of the receptor language. For instance, the Russian system consists of five vowel sounds, with no differentiation between short and long vowels. The Persian consists of six vowels, three long and three short. This contrasts with English which has twelve vowel sounds (five long, seven short), plus eight diphthongs. In case of consonants, also differences are obvious. For instance, the θ and ð sounds exist neither in Russian nor in Persian. So the sounds are mainly converted into *t*, both in Russian and Persia loanwords, for example:

(8) *мезис* 'thesis' [tezis]; *tz* [tez] — abbr.

The sound *h* does not exist in Russian, but Persian speakers have no problem to pronounce it. As a result, the sound is mainly converted into *g* in Russian loanwords, while in Persian loanwords it remains intact, for example:

(9) *harmvny* '*гармония*' [harmoni]; 'harmony' [garmonijə].

Adaptation of a single phoneme does not occur in the same way in all loanwords, for instance, the sound *ʒ* in journal remains almost intact in the loanword *журнал* [ʒurnal], while for *geology* it changes into *g*, *геология* [gialogijə].

Syllable structure may also affect phonological adaptation. For instance, syllable structure in Persian can be CV, CVC, and CVCC. While in English the patterns are VC, CVC and CCCVC. Russian syllables are commonly in the following forms: V, CV, VC, CVC, CCVC, CVCC, etc. It means, unlike English and Russian, Persian syllables cannot start with a vowel sound. As a result, loanwords with initial vowel gain a Persian syllable structure, that is CVC, by adding 'hamzeh', at the beginning, which represents the glottal stop [ʕ]. For example:

(10) *asyd* 'acid'[ʕæsid];
(11) *ayrvdynamyk* 'aerodynamic' [ʕairodinamik]

As it is seen from the examples, all aspects of the phonological system may influence the loanword to domesticate it into the structure of the receptor language. However, both Russian and Persian show few cases of loanword variants, which differ only phonologically. It seems phonological adaptation is almost fixed and seldom ends up to lexical variants within a single language.

1.2. ***Morphological adaptation.*** An adaptation to the morphological pattern of Persian is not so trendy. The Persian morphology is an affixation system mainly consisting of suffixes and a few prefixes. Every verb stem can act as a suffix. Due to this, the number of Persian suffixes is enormous and word-making pattern is too complicated. On the other hand, there are no case forms and no gender distinctions: it means, words remain intact.

Generally, loanwords undertake three Persian structural patterns:

1) plural form, by adding morpheme *ha*: *kndaktvrha* 'conductors' [kondaktorha] (other plural patterns usually are not applied for foreign terms);

2) adjective and attributive genitive, by taking morpheme *y* by a noun or an adjective, for example, *ktalysty* 'catalyst' [katalisti], *alktryky* 'electric' [ʕelekteriki];

3) past participle by replacing *-ed* with a morpheme *e*, for example: *hydrath* 'hydrated' [hidrate]; *aksydh* 'oxidized' [ʕokside].

According to Posetsky [5], "in Russian, as in English, the possibilities of attachment by a word-formation suffix are limited by the lexical specification of the category labels to which it may be attached". Hence, affixation system in Russian gives it enough flexibility to adopt English words to its pattern, for example:

(12) *депрессия* 'depression' [dəpresijə];

(13) *конденсация* 'condensation' [kəndənsatsɨjə];

(14) *гидростатический* 'hydrostatic' [gidrəstatitʃiskij];

(15) *изотермичный* 'isothermal' [izətərmitʃnɨj] or *изотермический* 'isothermal' [izətərmitʃiskij];

(16) *продуктивность* 'productivity' [prəduktivnəst'];

(17) *продуктивный* 'productive' [prəduktivnɨj];

(18) *диффузность* 'diffusivity' [difuznəst'].

In addition, nouns, adjectives, numerals and demonstratives bear case form suffixes, which motivates more complicated adaptation pattern than in Persian, for example:

(19) nominative: *гидростатический* ('hydrostatic') [gidrəstatitʃiskij];

(20) genitive: *гидростатического* [gidrəstatitʃiskəvə];

(21) dative: *гидростатическому* [gidrəstatitʃiskəmu].

In case of borrowing English or international verbs, both Persian and Russian follow almost definite patterns. In Persian, the common pattern is a compound verb with *krdn* [kærdæn] 'to do' (transitive) or *^sdn* [ʃodæn] 'to become' (intransitive). The first component of the verb may be a noun or past participle, made by adding morpheme *e* to the borrowed verb, for example:

(22) *fyltr krdn* ('to filter') [filter kærdæn];

(23) *Analyz krdn* ('to analyze') [ʕanaliz kærdæn];

(24) *mdrnyzh krdn* ('to modernize') [modernize kærdæn];

(25) *Adapth krdn* ('to adapt') [ʕadapte kærdæn];

(26) *plymryzh krdn/ ^sdn* ('to polymerize') [polimerize kærdæn/ʃodæn].

In Russian, the verb maker-suffix *(ир)овать* [(ir)əvət'] is used in most cases to adapt an English verb, for example:

(27) *фильтровать* ('to filter') [filtravat'];
(28) *анализировать* ('to analyze') [anəlizirəvət'];
(29) *модернизировать* 'to ('modernize') [mədərnizirəvət'];
(30) *адаптировать* ('to adapt') [adaptirəvət'];
(31) *полимеризировать* ('to polymerize') [pəlimirizirəvət'].

In both languages morphological adaptation demonstrates a conservative character. It means, although languages have different tools to provide a syntactical item, they employ certain, and (usually) the most common tools in each case. For instance, among different Persian plural maker morphemes, *ha*, *an*, *in*, the language employs only *ha* to modify a loanword. While in case of domestic terms, different morphemes may be employed for a single lexical unit, for example: *mhndsyn* [mohændesin], *mhndsan* [mohændesan], *mhndsha* [mohændesha] 'engineers', but *tknsynha* [teknesiænha] 'technicians'. In Russian the same phenomena can also be observed mainly in verb making pattern. That is, among several verb-making suffixes, the common trend is employing *(ир)овать* [(ir) əvət'].

Hence, morphological and phonological modifications of loanwords can hardly cause denominative variation, although the same factors may provide different variants for native words.

2. MORPHOLOGICAL BORROWINGS

Borrowing of derivative suffixes almost never happens in Persian. Borrowing of semantic affixes, however, are not rare, for example, decimal prefixes, like: *pico-*, *milli-*, *micro-*, *nano-*, *pykvsanyh* [pikosanije] 'pico-second'; *nanvzrat* [nanozærat] 'nano-particles'. Translated equivalents of each prefixes are also in use, for example: *pykvsanyh* [pikosanije] or *yk trylyvm sanyh* [jek triliom-e sanije] 'one trillionth second', *nanvzrat* [nanozærat] or *ryzZrat* [rizzærat] 'small particles'.

English derivative suffixes are also rare in Russian, but borrowed affixes are more common than in Persian, for example:

(32) *антипенный* ('antifoam') [antipennij];
(33) *антивещество* [antiviʃtʃistvo];
(34) *геологоразведка* ('geological exploration') [gioləgərazvetkə];
(35) *гидроагрегат* ('hydroelectric generator') [gidroagrigat];
(36) *гидробур* ('hydraulic drill') [gidrəbur];
(37) *моноволокно* ('monofilament') [monəvəlakno].

Synonym equivalents of the borrowed affixes in Russian are not as common as in Persian. Among the mentioned terms only two terms have synonym equivalents in use, however, the frequencies and applications are not completely the same:

(38) ***анти****пенный* [antipennij] or ***противо****пенный* ('against foam') [prətivapennij];
(39) ***моно****волокно* [monəvəlakno] or ***единичное*** *волокно* ('single filament') [jidinitʃnəji vəlakno].

As a result, Persian is more conservative in borrowing morphological units than the Russian language. The reason may be explained by the different relativity of the three languages or the different language policies, which are in practice for each receptor language.

3. CALQUES

Calque, or loan translation is defined as a form of borrowing from one language to another whereby the semantic components of a given term are literally translated into their equivalents in a receptor language. An early stage of loan translation is partial translation, in which a part of the source term keeps and other components, usually prefixes, translated into another language. The phenomenon is observed both in the Persian and Russian languages, for example:

Russian:

(40) *многофазный* (‘multiphase’) [mnəgafaznɨj];
(41) *докритический* ‘subcritical’ [dəkrititʃiskij];
(42) *одномолекулярный* ‘monomolecular’ [adnəməlikularnɨj].

Persian:

(43) *tk fylaman* [tæk filaman] (lit. ‘single filament’ i.e. ‘monofilament’);
(44) *tk mvlkvly* [tæk molekuli] (lit. ‘single molecular’ i.e. ‘monomolecular’);
(45) *alktrvn Hrarty* [ʕelektron-e hæraræti] (lit. electron thermal’ i.e. ‘thermoelectron’);
(46) *garntvar* [garnetvar] (lit. ‘garnet like’ i.e. ‘garnetoid’).

The grammatical role of the component also may be changed. For instance, in *thermoelectron*, prefix *thermo-* is converted into an adjective *hrarty* ‘thermal’ [hæraræti].

Loan translation is typically a literal word-for-word (or word/morpheme-for-word/morpheme). Nevertheless, strictly speaking, it is inaccurate to describe all loan translations as “literal”, or “word-for-word”. For instance, Russian has a tendency to form new vocabulary by compounding lexical units, for example:

(47) *нефтенасыщенность* [neftinasɨʃtʃɨnəst’] (lit. **‘**oil-saturation**’,** i.e. ‘oil saturation’);
(48) *глинокислота* [glinəkislata] (lit. clay-acid’, i.e. ‘mud acid’);
(49) *конусообразование* [konusaabrəzavaniji] (lit. ‘cone-formation’, i.e. ‘coning’).

While Persian intends to form prepositional phrase, for example:

(50) *a^sbae az nft* [ʕeʃbaʕ ʕæz næft] (lit. ‘saturated by oil’ i.e. ‘oil saturation**’);**
(51) *sylabzny ba alkl* [sejlabzæni ba ælkol] (lit. ‘flooding with alcohol’ i.e. ‘alcohol flooding’);
(52) *mvad feal dr stH* [mævade fæʕal dær sæth] (lit. ‘materials active on surface’ i.e. ‘surfactants’).

In most cases, Persian attempts to follow the same syntactic structure as in English, while Russian shows quiet a different pattern, for example:

(53) *acidizing* (gerund); *asydzny* (lit. ‘acid adding’) (geround) [æsidzæni]; *кислотная обработка пласта* (lit. ‘acid treatment of strata’) (genitive construction) [kislotnəji abrabotkə plasta];

(54) *afterflow* (preposition-noun compound): *psJryan* (lit. 'after-flow') [pæs dʒærian] (preposition-noun compound); *последейственное течение* (lit. 'after-effective flow') [poslidejstvinəji titʃeniji] (preposition-adjective compound + noun);

(54) *aquifer* (noun compound): *Abdh* (lit. 'water-giver') (noun compound) [ʕabdeh]; *водоносная формация* (lit. 'water-bearing formation') [vədanosnəji farmatsija] (adjective + noun);

(55) *jet drilling* (noun/modifier + gerund): *Jt Hfary* (lit. 'jet drilling') [dʒet hæfari] (noun/modifier + noun); *гидравлическое бурение* (adjective + noun) [gidravlitʃiskəji bureniji];

(56) *mud cake* (noun + noun): *gl kbrh* (lit. 'mud crust') (noun + noun) [gel kebereh]; *глинистая корка* (adjective + noun) [glinistəjə korka].

It is most noteworthy that some of these patterns are not typical in Persian. For instance, *Jt Hfary* 'jet drilling' [dʒet hæfari] or *gl kbrh* 'mud cake' [gel kebereh], where word order does not confirm with the Persian pattern. Unlike English, Persian modifier comes after the word it modifies, for example: *oil well* in Persian is *^cah nft* [tʃah-e næft], that is 'well + *e* + oil' (genitive case). Here (y)*e* is a meaningless element, whose sole function is to serve as a linker of predicate to the subject (traditional Persian grammar's term *ezafe*, 'putting together', 'linking', 'copula') [2]. So *jet drilling*, which is a method of drilling, must be translated into *Hfary Jty* [hæfari-je dʒeti] (noun + e + adjective), similarly, *mud cake* to *kbrh gl* [kebere-je gel] (genitive case). In some Persian compounds, however, adjective (or modifying noun) may place before noun without ezafe, for example: *glab* [gol-ab] (lit. 'flower-water' i.e. 'rose-water'); *ktabxanh* [ketabxane] (lit. 'book-house' i.e. 'library'), but the pattern is uncommon for noun phrases. Furthermore, this pattern, which is apparently an English borrowing, causes ambiguity. *Jt Hfary* [dʒet hæfari] is habitually read [dʒet-e hæfari] (genitive case), which implies *a drilling instrument* (jet), rather than a *method of drilling*; or *gl kbrh* [gel-e kebereh], that is *mud*, rather than *cake*. This ambiguity may motivate employment of nominative equivalents, for instance, in choice of *mud cake*, there are equivalents like *layh gl* [laje-je gel] 'layer of mud' and *andvd gl* [ʕændud-e gel] 'coating of mud'.

An exact equivalent structure, however, is possible both in Persian and Russian, for example: *oil in place*: *nft dr Ja* 'oil in place' [næft dær dʒa]; *нефть в пласте* 'oil in stratum' [neft' f plaste], still Russian equivalent does not totally confirm with the English, as Russian term *пласт* 'stratum' [plast] is not an exact equivalent for the English term *place*.

Persian renders almost the same pattern as Russian in some other cases, for example:

(57) *transition zone* (noun + noun): *zvn antqaly* [zon-e ʕenteqali] (noun + e + adjective); *переходная зона* [pirixodnəji zona] (adjective + noun);

(58) *invaded zone* (past participle + noun): *zvn rxnh* [zon-e rexne] (noun + e + noun i.e. genetive phrase); *область проникновения* [oblәst prəniknavenija] (noun + noun i.e. genitive phrase);

(59) *coning* (gerund): *mxrvT ^sdgy* [mæxruṭʃodegi] (compound verbal noun); *конусообразование* [konusaabrəzavaniji] (compound noun).

This pattern more confirms with the normal Persian structure. English very often realises with noun + noun compounds what Russian achieves with a noun qualified by an adjective, for example: *bottomhole pressure* (noun + noun), *забойное давление* 'bottomhole pressure' [zabojnəji davleniji] (adjective + noun); *suction hose* (noun + noun), *приемный рукав* 'receiving sleeve' [prijomnɨj rukaf] (adjective + noun); *transition zone* (noun + noun), *переходная зона* 'transitional zone' [pirixodnəji zona] (adjective + noun). Persian, however, renders both patterns almost with the same frequency, for example: *bottomhole pressure*, *f^sar th ^cah* [feʃare tæhe tʃah] (noun + e + noun); *suction hose, lvlh mk^s* [lule-je mækeʃ] (noun + e + noun); *transition zone, zvn antqaly* [zon-e enteqali] (noun + e + adjective); *offshore structures*, *sazh-hay dryayy* [sazeha-je darja-ji] (noun + (y)e + adjective).

Sometimes terms represent a semantic translation, for example, *oil saturation* 'measurement of the degree of saturation of reservoir pore structure by reservoir oil' is translated in Persian as *a^sbae az nft* '*saturated by oil*' [ʕeʃbaʕ ʕæz næft]. Interestingly in Russian the equivalent to *нефтенасыщенность* 'oil-saturation' [neftinasɨʃtʃinəst'] is *насыщение нефтью* [nasɨʃtʃeniji neftju], which expresses the same concept 'saturated by oil'. Similarly, *wildcat drilling* 'exploration drilling', in Persian is *Hfary akt^safy* 'exploring drilling' [hæfari-je ekteʃafi]. In Russian, there are two equivalents: *бурение методом «дикой кошки»* 'drilling by "wild cat" method' [bureniji metədəm dikəj koʃki] and *поисковое бурение* 'exploring drilling' [pəiskovəji bureniji]. Russian shows more tendencies to adapt conceptual translation than Persian, as a result translation contains extra elements, for example: *acidizing*, *кислотная обработка пласта* 'acid treatment of stratum' [kislotnəji abrabotkə plasta]; *afterflow*, последействующее течение 'after-effective flow' [poslidejstvinəji titʃeniji].

Terms in the receptor language whose literal meaning bears no relation to that of the source language, occur when loan translation fails to produce a well-motivated term. Presence of extra terms may result in a long multi-word clause, which is not so handy to be used frequently in a text; hence, instead a loanword may be preferred. For instance, the term *upstream*, meaning operations stages in the oil and gas industry that involve exploration and production. Pertaining to equipment, facilities or systems located in the wellbore or production train above the surface choke or Christmas tree, is used against *downstream* pertaining to equipment, facilities or systems that are located in the production train after the surface choke, typically attached or close to the Christmas tree [4]. In Persian, literal translations *baladsty* [baladæsti] (lit. 'up-hand' i.e. 'toward or in the higher part of a stream') and *payndsty* [pajindæsti] (lit. 'down-hand' i.e. 'the direction that a river flows') are matched perfectly, while in Russian, a tendency to adapt conceptual translation prevents using the literal translations of the terms, that is, *вверх по течению* [vverx pə titʃeniju] and *вниз по течению* [vnis pə titʃeniju]. Furthermore, the conceptual translations, *любая предыдущая технологическая операция* [ljubajə pridɨduʃtʃajə texnələgitʃiskajə aperatsijə] [3] 'any preceding technical operations' and *любая последующая операция технологического цикла* [ljubajə posledujuʃtʃajə aperatsijə texnələgitʃiskəvə tsikla] [3] 'any following operation of technical cycle' are not enough compendious to be applied. As a result, often loanwords *апстрим* [apstrim] and *даунстрим* [daunstrim] are used instead.

4. ABBREVIATIONS

Unlike the English and Russian languages, abbreviations and acronyms are not so much in practice in Persian, they only recently are applied in some specific texts and mostly used for titles or trade marks. Two groups of abbreviations can be observed in new Persian, native-origin and Persian-origin. Shortening of Persian words or word-groups is more favoured when the created word or acronym is expressive. For example [9]:

(60) *hvapymayy mly ayran* [hævapejmai-je melli-je ʕiran] 'Iranian National Airline' (Iran Air) ◖ *hma* read as [homa] 'phoenix';

(61) *Hsn rftar v krdar trafyk* [hosn-e ræftar væ kerdar-e terafik] (lit. 'good behaviour and action of traffic' i.e. 'Good Behaviour in Dense Traffic') ◖*Hrkt* read as [hærekæt] 'movement';

(62) *^sbkh aTlae rsany Hvzh* [ʃæbæke-je ʕetela resani-je hoze] (lit. 'network of information distributing of Howzah' i.e. 'Howzah Information Network') ◖ *^sarH* read as [ʃareh] 'explainer'.

Abbreviated titles are mainly preferred by corporations, companies and military organizations for the economy of space and effort in writing. For example [9]:

(63) *nrmafzar v sxtafzar ayran* [nærm æfzar væ sæxtæfzar-e ʕiran] (lit. 'software and hardware of Iran, i.e. 'Iran Hardware and Software Co.') ◖ *nvsa* read as [nosa];

(64) *nyrvy antZamy Jmhvry aslamy* [niruj-e ʕentezami-je dʒomhuri-je ʕeslami] (lit. 'force of police of republic of islamic' i.e. 'Islamic Republic Police Force') ◖ *naJa* read as [nadʒa].

High-frequency professional terms may be abbreviated as well. For example [9]:

(65) *^smarh bynalmlly astandard ktab* [ʃomare-je bejnolmelæli-je ʕestandard-e ketab] (lit. 'number of international standard of book' i.e. 'International Standard Book Number') ◖*^sabk* read as [ʃabæk] 'ISBN';

(66) *fhrstnvysy py^s az ant^sar* [fehrestnevisi piʃ ʕæz ʕenteʃar] (lit. indexing before publication' i.e. 'Cataloguing In Publication') ◖*fypa* read as [fipa] 'CIP'.

However, initialisms and abbreviated forms of Persian scientific and technical terms are rare. To economize the space, long and compound terms can be shortened by restating the key words in a single text, for example:

(67) *mtelqat tHtany r^sth Hfary* [moteʕæleqat-e tæhtani-je reʃte-je hæfari] (lit. 'belongings beneath strand of drilling' i. e. 'Bottom Hole Assembly' BHA) ◖*mtelqat tHtany* [moteʕæleqat-e tæhtani] (lit. 'belongings beneath' i.e. 'bottom assembly');

(68) *mxazn ^skafdar Tbyey* [mæxazen-e ʃekafdar-e tæbiʕi] (lit. reservoirs cloven natural' i.e. 'naturally fractured reservoirs') ◖ *mxazn* [mæxazen] 'reservoirs'.

This method, however, is rather typical for oral speech. To avoid ambiguity in written speech the Latin abbreviations are usually used along with the key word. In other words, the Latin abbreviation acts as an adjective for the central word, for example: *mtelqat BHA* [moteʕæleqat-e] 'BHA belongings'; *mthhay PDC*[1] [mæteha-je] 'PDC bits'; *hfary UBD*[2] [hæfari] 'UBD drilling' [7]. Similar type of variation exists in Russian but is almost rare, for example: *npoцecc GTL*[3] [pratses] 'GTL process'.

Non-Persian acronyms are usually transcribed in the Persian script. Unlike the Russian language, translation variations of acronyms are rare in Persian, for example: OPEC or *opk* [ʕopek], *ОПЕК* [opek] or *ОСЭН* [osen] (Организация стран-экспортеров нефти [argənizatsijə stranikspartorəf nefti] lit. 'organisation countries exporters of oil'); LASER or *lyzr* [lejzer], лазер [lazər] or *ОКГ* [okage] (оптический квантовый генератор [aptitʃiskij kvantəvɨj giniratər] lit. 'optical quantum generator').

Non-Persian abbreviated terms are either transcribed in the Persian script, or expressed by English characters. In Russian, translation variations or full translation are also typical, for example: GTL or *Jy ty al* [dʒi ti ʕel], *процесс GTL* [pratses] or *процесс переработки газа в жидкое топливо* [pratses pirirabotki gaza v ʒitkəji topliva]; LNG[4] or *al an Jy* [ʕel ʕen dʒi], *сжиженный природный газ* [ʒʒɨʒənɨj prirodnɨj gas]; CNG[5] or *sy an Jy* [si ʕen dʒi], *СПГ* [espege] (сжатый природный газ [ʒʒatɨj prirodnɨj gas])[6].

CONCLUSION

Loanwords always undergo incorporation both into the phonological and morphological systems of the receptor language. Almost no loanword can be found in Russian or Persian, which has not undertaken some extents of adaptation. The first step of adaptation occurs in stress (accent) pattern. The phonological adaptation is complicated in case of vowels both in the Persian and Russian languages. All aspects of the phonological system may have influences on the loanword to domesticate it into the structure of the receptor language. However, variants of loanwords, which differ phonologically, are rare. It seems phonological adaptation is almost fixed and seldom ends up to lexical variants within a single language.

The morphological adaptation demonstrates a conservative character, it means, although languages have different tools to provide a syntactical item, they employ certain and (usually) the most common tools in each case. Borrowing derivative suffixes is almost rare, while borrowing semantic affixes is common, although the frequency is not the same in the both languages. Persian is more conservative in borrowing morphological units than the Russian language. Consequently, synonym equivalents of the borrowed suffixes in Persian are more common than in Russian.

Partial translation is observed both in the Persian and Russian languages. In most cases, Persian attempts to follow the same syntactic structure as in English, while Russian shows quiet a different pattern. Russian shows more tendencies to adapt conceptual translation than Persian, as a result translation contains extra elements. Presence of extra terms may result in a long multi-word clause, which is not so handy to be used frequently in a text; hence, a loanword may be preferred instead. Initialisms and abbreviated forms of Persian scientific and technical terms are rare. Usually to economize the space, long and compound terms are shortened by restating the key words in a single text. The Latin abbreviations also are used along with the key word to prevent ambiguity, which stimulates the formation of variations. Non-Persian acronyms may be transcribed in the Persian script or used in the English script. English acronyms may be decoded and translated in Russian, while in the Persian scientific terminology it is quite rare and does not cause variations.

NOTES

[1] Polycrystalline Diamond Compact Bits.

[2] Under Balanced Drilling.

[3] Gas-to-liquids.

[4] Liquified natural gas.

[5] Condensed natural gas.

[6] Political terms, however, are very often conceptually decoded and translated in Persian e.g. *k^ vrhay ezv grvh h^st* [keʃværha-je ozve goruh-e hæʃt] lit. 'countries members of group eight' i.e. 'Countries of Eight Group' (G8), *k^svrhay mstql m^strk mnafe* [keʃværha-je mostæqele moʃtærækol mænafe'] lit. 'countries independent shared revenue' i.e. 'Commonwealth of Independent States' (CIS).

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АНГЛИЙСКИЕ ЗАИМСТВОВАНИЯ В РУССКОМ И ПЕРСИДСКОМ ЯЗЫКАХ: СРАВНИТЕЛЬНОЕ ИССЛЕДОВАНИЕ НЕФТЯНОЙ ТЕРМИНОЛОГИИ

М. Фаал-Хамеданчи

Медлинг с.р.о.
Папирова 525, Либерец, Чешская Республика, 460 01

Статья посвящена анализу явления языкового заимствования как причины изменения деноминативных терминов. Применяя описательный и сравнительный подход, автор статьи рассматривает функции и способы принимающего языка в процессе употребления и адаптации иностранных терминов.

Ключевые слова: языковое заимствование, нефтегазовая терминология, калька, семантическое заимствование, неологизм, персидский, английский и русский языки.

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