

## CLASSIFICATION OF THEMATIC GROUPS OF IT INTERNATIONAL TERMS IN THE ENGLISH, KARAKALPAK AND KOREAN LANGUAGES

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### **Abstract**

The article is dedicated to the investigation of classification of thematic groups of IT international terms in the English, Karakalpak and Korean languages.

**Key words:** *activity, language, features, meaning, aspect, units, comparative, linguistic, comparative, task.*



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The rapid development of the IT field and its in-depth penetration into human activity has brought about great changes in the language as well. In particular, the rapidly changing and active layer of the lexicon of the English, Karakalpak and Korean languages of lexical units in the field of IT terminology.

" В современной лингвистике существует мнение, что термины -это слова литературного языка, употребленные "в терминологической функции" в определённом функциональном стиле." [1;67].

Therefore, the scientific study of the problems of linguistic features and lexicographic interpretation of IT terminology poses a number of important tasks to our linguists. According to S. V. Grinev, terms as lexical units can be studied in three different aspects according to their structure, meaning and application aspects. In terms of form, terms consist primarily of terms-words (single-word terms) and compound terms (terminological phrases).

In this article, the terms in English, Karakalpak and Korean languages were studied in a comparative manner and their similarities were identified.

There are many aspects and disciplines in terminology research [ISO TC37; Sager, 1990]. Korean term has responsibility to collect and distribute Korean terminology in all area under the auspices of Ministry of Culture and Tourism in the context of Korean language policy. Institute of Technology Standardization under the Ministry of Industry and Energy also designates Korean term for industrial terminology standardization in the context of industrial Korean Standards. On the other hand, Ministry of Science and Technology has supported by two kinds of reason to support Korean term: one is to pursue the Korean own scientific terms for the right communication and the other to promote the information processing technologies. Here, the current state of terminology standardization and research methodology will be introduced.

The vocabulary of Korean comes from myriad sources. Similar to the Japanese and Vietnamese languages, Korean language was influenced by the **Chinese language** in the form of Sino-Korean words. **Native Korean** words account for about 35% of the Korean vocabulary, while about 60% of the Korean vocabulary consists of Sino-Korean words. The remaining 5% comes from loan words from other languages, 90% of which are from English.

As in Japanese, Korean uses words adapted from English in ways that may seem strange to **native English speakers**. For example, when we do **English to Korean writing translation**, in soccer heading (헤딩) is used as a

noun meaning a 'header', while fighting (화이팅) is a term of encouragement like 'come on'/'go (on)' in English. Like the word seobiseu (서비스), which comes from the English word service, is free or 'on the house'. A building referred to as an 'apart' (아파트) is an 'apartment' (but in fact refers to a residence more akin to a condominium) and a type of pencil that is called 'sharp' (샤프) is a mechanical pencil.

The official spelling of some Korean word has been evolved over the years. Such as, the spelling of "no" has been changed twice. It has gone from aniyo to anio, then back to aniyo; "Thank you" used to be "gomawayo", now it is "gomaweoyo"; "Beautiful" was once "areumdawayo", now it is "areumdaweoyo".

First of all, structural similarity (isomorphism) of IT field terms collected in English was classified.

In English:

1) 146 simple (root-word) terms: node, net, Prospero, protocol, proxy, public, resource, rout, session, shell, tag, traffic, worm

2) 325 artificial (affixal) terms were identified: conformance, provider, reassembly, routing (routeing), selector, supercomputer, transceiver, beating, claimant, archiving, accessibility, cloning, antivirus

3) 154 joint terms: bandwidth, database, broadband, backbone, backdoor, handset, wirelesscommunication, baseband, broadcast, gateway, network, walkie-lookie, one-way, long-haul, pulse-code, shared-mediaba and etc.

4) 2630 simple compound terms: data communication, bypass organization, comb filter, bulletin board, colour balance, aperture lattice, anonymity key, antinoise correction, amplitude manipulation, aperture correction, call waiting, bandwidth allocator, backlogged station, communication macroeconomy, command sequence, cryptographic algorithm, contact rectifier, cross interference, cryptographic key, contaminated circuit and etc.

5) 1238 terms with complex compound: bit count integrity, voice and backgrounds data telecommunication, access control list, access grant channel, access control mechanism, automated data processing system and etc.

Therefore, IT field terms in English can be divided into the above-mentioned five groups according to their structure.

Classification of IT terms according to their structure showed that joint terms form a separate group among the terms of this field. Usually, "compound term" is understood as a new lexical unit formed by the combination of two or more independent terms or term elements. It is known that compound terms are the most relevant and controversial issue in the system of scientific and technical terminology, and in a number of works of linguists, it is suggested that compound terms are created in comparison to common words in common language.

It is logical, of course, that the views about compound words also apply to compound terms. We believe that clarifying the commonalities and differences between compound terms and compound words will shed some light on these discussions.

In English, IT joint terms can be divided into the following types according to their structural-semantic content:

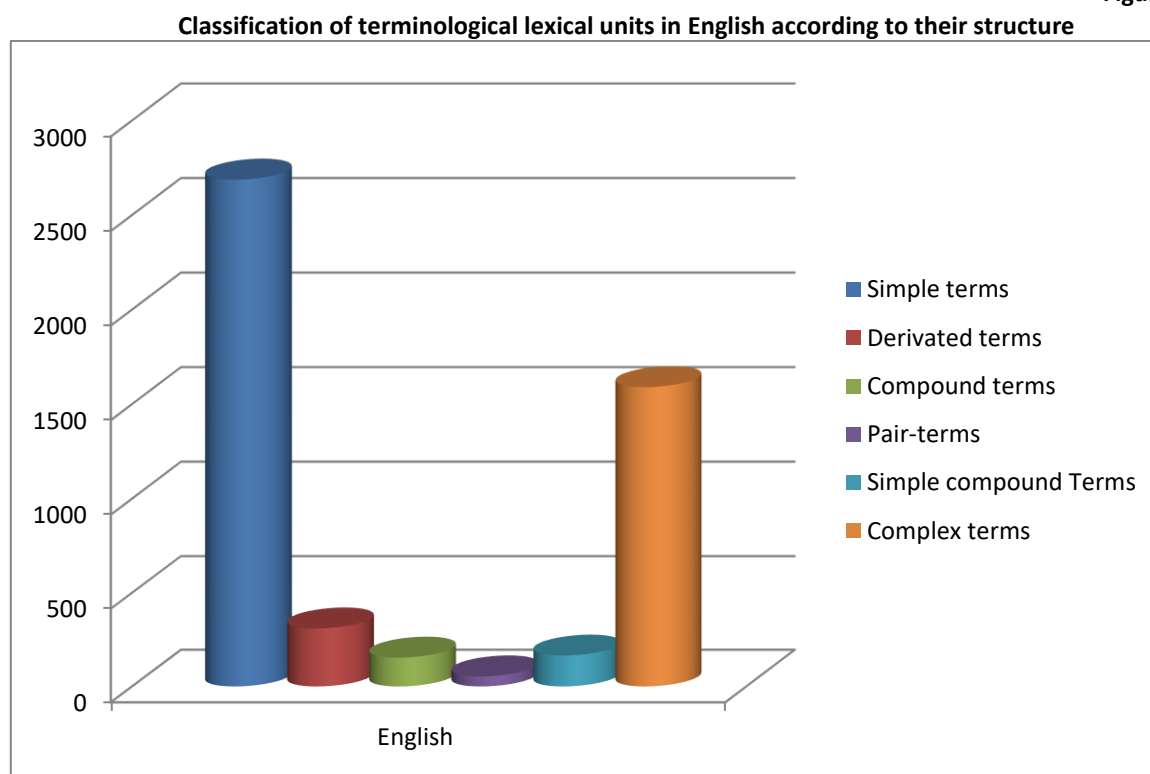
1. Fully motivated compound terms as: *database* - маълуматлар базасы - 데이터 베이스, *databank* - маълуматлар банки - 데이터 저장소, *challeng* - response - шақырыў-жуўабы - 도전 - 응답, *computer-programming* - компьютер дәстүрлеў - 컴퓨터 프로그래밍. The meaning of fully motivated compound terms can be understood from the lexical meanings of their components.

2. Partially motivated compound terms: *homepage* - бошланғич саҳифа; асосий саҳифа, *hypertext* - гиперматн, *ciphertext* - шифрматн, *memorycell* - хотираловчи (эсда сақловчи) қурилма. The meaning of such combined terms is understood from the meaning of the defining component in them. In this case, there is a semantic connection between the components of the joint terms.

3. Unmotivated compound terms: *laptop* - лэптоп, қўл компьютер, *knapsack* - ўта узун кетма-кетлик and etc. The meaning of such unmotivated terms cannot be determined from their components because there is no semantic connection between them. Their meaning can only be understood through context. Although the lexemes *lap* and *knap*, which have an independent meaning and are used independently in the combined terms

of this form, are formed by the composition method and become a component of other similar combined terms, they may not participate in all of the combined terms with the same meaning. For example, laptop, lap-board, lap-dog, lap-joint component of the joint terms knapsack, knapweed do not have the same meaning. Therefore, lap and knap components in these combined terms do not mean specific to the formant (component) forming the term.

**Figure 1**



Thus, a comparison of the lexical morphological aspects of the joint terms used in the framework of IT terms shows that there is a relationship between them. Compound terms are mainly divided into the following types according to the composition: 1. N+N (от+от): field-picture, firewall, footprint, homepage, laptop, network, deltaframe, peakcell; 2. Adj+N (сифат+от): freeware, idle-channel, realtime, softphone, software, softkey, hardcopy; 3. Num+N (сон+от): half-bridge, half-bite, half-card, half-cycle, half-duplex, three-tuple, dual-head; 4. N+V (от+феъл): address-stop, division-stop, form-stop and etc. In the linguistic research of the IT terminology system, the formation of the morphological structure of the compound terms and the structural common basis were studied in relation to the compound word. However, it should be said that correcting the spelling of compound terms on the basis of compound words undermines the content of the terms, that is, it causes the wrong perception of the concept expressed by the compound terms.

English also has some special types of IT compound terms known as composite terms, complex compound terms, and lettered compound terms. Due to the small number of such combined terms, we did not include them among actively used terms. Nevertheless, we tried to classify them structurally and semantically:

1. Compound terms. In this case, the compound term is the basis of the formation of the compound term, that is, the part that motivates its meaning, and the part that forms this term is the word-forming affix. The models of their creation can be in the following forms: Adj.+N+-ing: narrow+cast+-ing, broad+cast+-ing; N+N+-ing: video+conferenc+-ing, eaves+drop+-ing, water+mark+-ing, wire+tap+-ping; Adj.+N+-er: down+convert+-er; N+V+-or: sign+generat+-or, field+sequent+-ial;

2. Complex compound terms. Complex compound terms are formed from single word morphemes and represent a general terminological meaning. The model of their creation will be as follows: N+prep.+N: Peer-to-peer, customer-to-customer, business-to-business.

3. Lettered compound terms. These are mainly terminological units specific to the system of scientific and technical terminology. A letter is recognized as the basis of such compound terms. For example:  $\Delta$  (delta) - frame, H-band, K-factor, L-band. During the formation of IT terminology, a number of hybrid terms appeared and came into use using term-forming elements such as crypto, cyber, hyper, meta, nano, pseudo, sub, super, tele, trans. For example, *crypto*: *cryptology, cryptosystem, cryptanalysis, cryptography*; *cyber*: *cyberart, cyberattack, cyberculture, cybernation, cyberspace, cyberphobia, cybercard*; *hyper*: *hypertext, hypercube, hyperlink, hypermedia*; *meta*: *metafile, metacomputing, metatag, metadata, metalanguage, metanetwork, metasearch*; *nano*: *nanocomputer, nanotechnology, nanotube, nanomachine, nanorobot, nanoaddress*; *pseudo*: *pseudotrunking, pseudocode, pseudo-object, pseudo-random, pseudoaddress*; *sub*: *subnetwork, subnotebook, subsystem*; *super*: *superblock, super-frame, super-reliable, super-resolution, superacoustic, superaudio, super-telephone*; *tele*: *teleconferense, telemarketing, teleeducation, telemedicine, teletext, telebanking*; *trans*: *transmission, transducer, transaction, transputer*.

Such hybrid terms mainly embody the characteristics of precision, unambiguity and brevity, which correspond to the basic requirements of the term. This feature of them differs from compound terms and descriptive terms in terms of usage. In general, hybrid joint terms are becoming more active in the IT terminology system of the English, Karakalpak and Korean languages.

In the process of structural classification of AT terminological units in the Karakalpak language, they were divided into the following groups according to general similarities in their structure: 1) simple root terms; 2) artificial terms; 3) joint terms; 5) double terms; 6) simple compound terms; 7) complex terms. From this classification, it is possible to observe typological similarities between formal indicators in the form of their structure. The following examples show that the criteria and principles specific to this classification correspond to the Karakalpak language IT terminology system:

1) simple basic terms (273): antenna, matrix, media, environment, meme, memory, menu, message, core, key, logic, login, hub, color, etc.;

2) artificial terms (affixal) (257): hole, masking, impermeability, indexing, integrity, embedding, interruption, depth, digital, digitizing, digitizer, duplexing, encryption, carrier, filtering, join, radiation, delay, adjuster, as a command;

3) compound terms (89): bookmark, brush, popular, text, radio interface, sandbox, violator, etc.

4) pairs of terms (52): alpha-channel, alpha-testing, client-server, compression-expansion, delta-frame, call-response, information-calculation, etc.

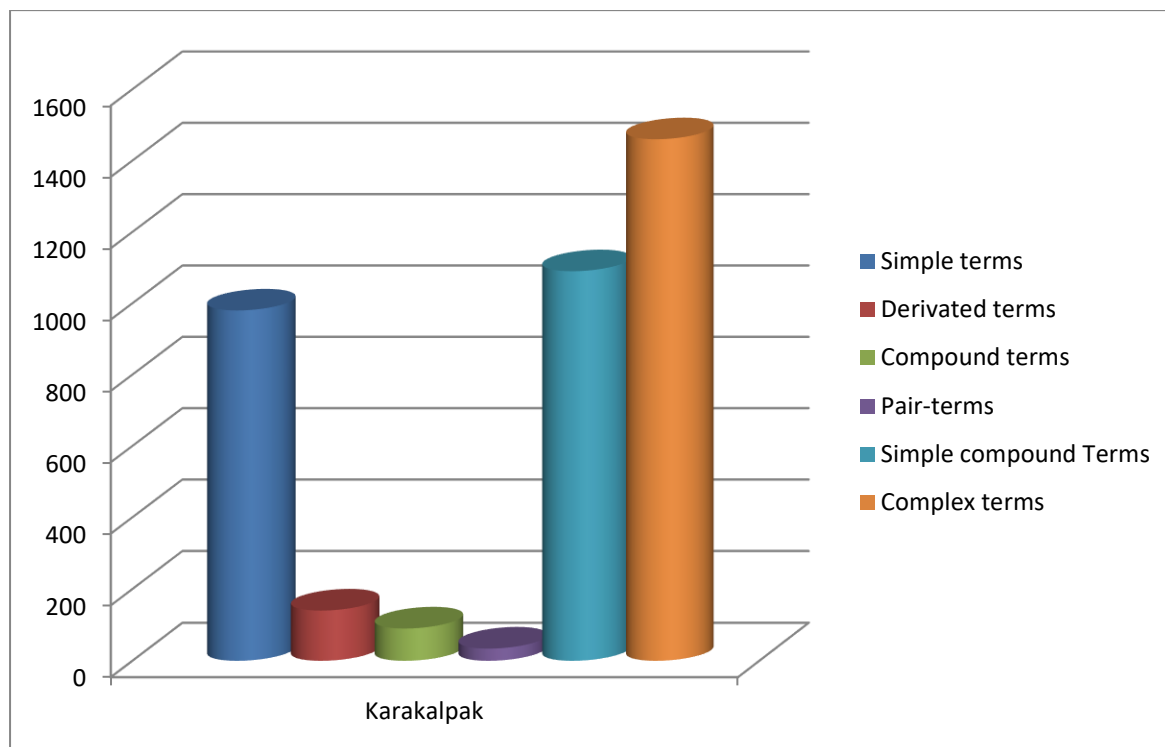
5) simple compound terms (1,537): graphic display, protection interval, group signature, simple walking, direct recovery, distribution service, etc.;

6) complex terms (2312): owner of the signature key certificate, domain name registrar, requirements for electronic document, limited use communication network, "echo" distortions of the image, access to state secret information, accreditation of the right to compare measuring instruments, as the angular frequency of sinusoidal electric current;

The total number of simple terms in the IT terminological system of the Karakalpak language is more than the simple terms in the English language. The main part of them consists of terms borrowed from the English language and Karakalpak IT term equivalents that appeared on the basis of these terms. For example: terms such as bekdor, billing, bitrate, blogosphere, botnet, cloaking, captcha, chipset, browser are included in the list of artificial, complex or abbreviated terms of the English IT terminology system, but when Karakalpak language is acquired by transliteration into IT terminology, they are in Karakalpak language become one-word terms, because the morphemes contained in these terms were accepted as an inseparable unit of the Karakalpak language when they were assimilated into the Karakalpak language.

Figure 2

Classification of IT terminological lexical units in the Karakalpak language according to their structure



The hybrid terms used in the field of IT have become neologisms in the universal language and contribute to the enrichment of the language. According to the structure of hybrid terms in the Karakalpak language, IT is formed by combining international term-elements and Karakalpak, Arabic and Persian-Tajik lexemes.

In the Karakalpak language, IT hybrid terms are classified according to the amount of components in the content. In this case, from the terminological point of view, the components that make up hybrids are divided into the following types:

1. Two-component hybrids, the first part of which is formed from an international term element, and the second part from a Karakalpak word: cyberculture, cybertext, cyberspace, telelearning, teleconference, superkey, etc.;

2. Relatively few three-component hybrid compound terms. In this case, the international term elements are two, and the blackcap part is one, or vice versa: such as radio-television, video conference, video sequence.

The international term elements in hybrid joint terms are of two types from the point of view of independent use or dependence:

1. Word terms, both components of which have an independent meaning and application: radio wave, radio radiation, computer-printing, cross-program, etc.;

2. Hybrid terms consisting of analytical identifiers such as pseudo-, peta-, meta-, nano-, cryto-, etc., with an international component: cyberperson, pseudoanalysis, nanosystem, hyperlink, etc. Although these components are considered morphemes with independent meaning, they are not used as separate terms because of the presence of relational features. It is known that the main part of AT pairs of terms used in the Karakalpak language today were taken from English and Russian languages by the methods of copying and semi-copying. For example, a number of IT compound pair terms in the English language have different forms, and in the Karakalpak and Korean languages this is the case: *cross-browser* - *кросс-браузер* - *크로스 브라우저*, *cross-platform* - *кросс-платформа* - *크로스 플랫폼*; *computer-aided system* - *компьютерлестирилген система* -

컴퓨터 지원 시스템, *cross-coupling* – кесууши-байланыс -교차 결합, *inlet-outlet pair* - кирүү-чыгыу жуплығы -입구-출구 쌍 and etc.

We can observe in the example of IT terms that such terms, which are considered compound terms in English and are considered double terms in the Karakalpak language, are formed through the process of substantivization. The compactness of these terms in terms of structure and their concrete meaning make it convenient to use them, therefore, it is observed that this method of making terms is becoming more active nowadays. It is known that there are many simple (two-word) compound terms among the IT terms of the Karakalpak language. Such terms can be divided into several types according to the interconnection of their components. In the Karakalpak language, simple compound terms of the noun+noun form are joined by means of suffixation. (Explanation (t) [a] 1. esq.kt. Add, connect, attach. 2. Linguistics. In the grammar of Persian, Arabic and some Turkic languages: an unstressed connecting element that connects the determiner with the determiner located after it; "и" after consonants in Karakalpak).

Explanation mainly has three forms:

1. In the first type of addition, both components of the simple compound term have no grammatical sign at all. In this case, the interdependence of components is determined by word order and tone: such as mobile phone, mobile communication, keyword, client-server.

2. The first component of the second type isophasic combination comes in the form of the main agreement, and the second comes with a possessive suffix: information flow, information product, information market, information analysis, information processes, information services, control point, control log, etc.

3. In the third type of superposition, the first component of the compound term comes in the form of a demonstrative agreement, and the second comes with a possessive suffix: target-system of information, development of information-society, information-potential of society, communication-networks. security, protection integrity, bit integrity.

According to the research analysis, the comparative classification of IT terminological lexical units in English and Karakalpak according to the structure is presented in the following table.

**Table 1**

**Classification of IT terms according to their structure**

Classification of IT terms according to their structure		English		Karakalpak	
		Number	%	Number	%
Term words	Simple terms	204	4,48%	237	5,29%
	Fictitious terms	325	7,14%	257	5,73%
Compound terms	Compound terms	154	3,38%	89	1,98%
	Pair of terms	-	0%	52	1,16%
	Simple compound terms	2630	57,79%	1537	34,28%
	Advanced common terms	1238	27,20%	2312	51,56%
<b>Total</b>		<b>4551</b>	<b>100%</b>	<b>4484</b>	<b>100%</b>

Thus, the system of IT terms in the English and Karakalpak languages as a newly formed terminological system is developing extremely fast compared to other scientific and technical terminological systems. Today, no field can be imagined without information and communication technologies. Therefore, studying the sources of emergence and linguistic features of terms expressing new concepts related to the field of IT, based on scientific approaches, has become one of the current issues of the fields of science such as scientific and technical terminology and terminography.

Our observations show that the structure of modern IT terms in the English and Karakalpak languages is not sufficiently studied scientifically.

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