

Marchenko Tetiana Anatoliivna, PhD in Philology, Associate Professor, Associate Professor of the Department of State and Legal Disciplines and Ukrainian Studies Sumy National Agrarian University, 160, Herasyma Kondratieva st., Sumy, 40021, tel.: (067)8045468, <https://orcid.org/0000-0002-2694-5315>

MILITARY TERMINOLOGY: SOME ISSUES OF AMERICAN PATENT TRANSLATION

Abstract

The war in Ukraine showed that arms and weapons are the integral parts of a national economics. To produce weapon Ukrainian engineers, have to create modern, powerful system of production. The fastest and the easiest way is to use existing samples of well-developed countries (the USA, Great Britain, Germany, etc.). Ukrainian engineers need to search information in English. Therefore, the military vocabulary is a vital necessity in Ukraine for the scientists to be the part of the world society of weapon production. Ukrainian scientists (in engineering, technology, chemical, material sciences, etc.) are invited into different projects, they are highly-motivated and able to invent new products to defense our country and help our army. On this way the one obstacle is appeared - the way to translate the terms to provide the analysis of the existing researches of the military field.

Moreover, in today's situation the linguistic problems are deeply connected with the development of defense industry of Ukraine: very often the language does not have time to react naming, translating, and assimilating the military terms to fast inventions in the industry; Ukrainian linguists have never faced before with the "flow" of new words and their new meanings: "Structuring, unification and standardization of military terms and determining the interrelations between them can be the result of KO [Knowledge Organization] of the military terminology. In this way it would become much easier to find the proper place of each military term that refers to military activities, processes, products or actors by following the model and "filling in" the appropriate facets" [11, p. 44].

The situation with defense industry in Ukraine now is absolutely dramatic. As the Chief Executive Officer of the Ukrainian manufacturer UAV (unmanned aerial vehicle, commonly known as a drone) Vladyslav Belbas said: "Without waiting for lend lease, Ukraine is obliged to place orders with domestic producers. Will there be negative consequences for the Ukrainian defense industry from lend lease? Yes, there will, but the key word here is 'Ukrainian.' Because if there is no lend lease, then there will be no Ukrainian defense industry. There needs to be a healthy balance between import supplies capabilities and domestic manufacturing capabilities" [9].

Key words: military terminology, translation, patent, defense industry, war.

Марченко Тетяна Анатоліївна, кандидатка філологічних наук, доцентка, доцентка кафедри державно-правових дисциплін та українознавства Сумського національного аграрного університету, 40021, м. Суми, вул. Герасима Кондратьєва, 160, тел.: (067)8045468, <https://orcid.org/0000-0002-2694-5315>

ВІЙСЬКОВА ТЕРМІНОЛОГІЯ: ДЕЯКІ ПИТАННЯ ПЕРЕКЛАДУ АМЕРИКАНСЬКИХ ПАТЕНТІВ

Війна в Україні показала, що озброєння є невід'ємною частиною національної економіки. Для виробництва зброї українським інженерам необхідно створити сучасну потужну систему виробництва. Найшвидший і найпростіший шлях – використовувати наявні зразки розвинутих країн (США, Великобританія, Німеччина та ін.). Українським інженерам необхідно шукати інформацію англійською мовою, тому військова лексика є життєвою необхідністю в Україні для того, щоб науковці були частиною світового товариства виробництва зброї. Українських науковців (у галузі техніки, технологій, хімії, матеріалознавства тощо) запрошують до різних проектів, вони мають високу мотивацію та здатні винаходити нові засоби для захисту нашої країни та допомоги нашій армії. На цьому шляху виникає одна з перешкод - спосіб перекладу термінів для забезпечення аналізу існуючих досліджень військової галузі.

Крім того, у сьогоденній ситуації мовні проблеми глибоко пов'язані з розвитком оборонної промисловості України: дуже часто мова не встигає реагувати, називаючи, перекладаючи та асимілюючи військові терміни на винаходи у військовій галузі. Українські мовознавці ніколи раніше не стикалися з таким «потокком» нових слів та їх новими значеннями: «Структурування, уніфікація та стандартизація військових термінів і визначення взаємозв'язків між ними можуть бути результатом ОЗ [Організації знань] військової термінології. Таким чином, було б набагато легше знайти належне місце для кожного військового терміна, який відноситься до військової діяльності, процесів, продуктів або акторів, слідуючи моделі та «заповнюючи» відповідні аспекти» [11, с. 44].

Ситуація з оборонно-промисловим комплексом в Україні зараз абсолютно драматична. Як зазначив генеральний директор українського виробника БПЛА (безпілотний літальний апарат, більш відомий як дрон) Владислав Бельбас: «Не чекаючи ленд-лізу, Україна зобов'язана розміщувати замовлення вітчизняним виробникам. Чи матиме український військовий комплекс негативні наслідки від ленд-лізу? Так, буде, але тут ключове слово «український». Тому що якщо не буде ленд-лізу, то не буде українського військового комплексу. Потрібен здоровий баланс між можливостями імпорتنих поставок і внутрішніми виробничими можливостями» [9].

Ключові слова: військова термінологія, переклад, патент, оборонно-промисловий комплекс, війна.

The war in Ukraine influences on the way how Ukrainian society lives and survives. The language of the people has changed significantly: at the beginning of war in February, 24, 2022 Ukrainian language was mostly influenced by obscene language (borrowed from Russian), that helped to fight with the huge psychological load of that period. Also, the war brought great number of patriotic mottoes, that are still used in everyday communication. But the most numerous group of lexical units came from the military vocabulary. It was a sorrow to realise that even children began to understand difference between types of weapon and arms. Military vocabulary became well-known, widely used and sometimes prevail the other groups of the words. It is the way how the usual people see, hear and speak.

The Ministry of Defense of Ukraine conduct the projects and we can find even the information on the official site: Top 10 Weapon Systems Made in Ukraine: The Centre for Army, Conversion and Disarmament Studies [military think-tank] has composed a list of the top 10 innovations in weaponry and military hardware which have most impacted Ukraine's defense capability or its position on the international arms market:

1. High-precision destruction weapon systems, such as Kombat, Stuhna and others, which have shown the capability of Ukrainian inventors to develop new, state-of-the-art weapons (Kiev-Based State Design Bureau Luch);
2. The development and promotion of the An-148 aircraft, which helps lead the nation's plane building sector out of a crisis, takes second place (Antonov State Aviation Concern);
3. In third place is a modernized version of the radar reconnaissance Kolchuha-M system demonstrating Ukraine's ability to develop technology created in the former USSR (special design bureau of the state joint-stock holding company Topaz, the state Ukrspetseksport [arms-trading] company);
4. The new Oplot tank and light armour elements for the BTR-3E1 and BTR-4 armoured personnel carriers take fourth place. The new equipment may lead to the emergence of a completely new type of armoured vehicle [Kharkiv-based Morozov machine-building design bureau];
5. The development of the new corvette class military vessel with integrated elements and western manufactured assemblies come in fifth place (state-owned research and design centre of shipbuilding);
6. In sixth place is the new three-dimensional radar station Pelikan (79K6), which has allowed national radar system developers to remain among world leaders (Iskra National Design and Production Enterprise);
7. A system to protect helicopters from high-precision means of destruction with an infra-red seeker is in seventh place (the Adron Research and Production Company);
8. In eighth place is a new system for defending armoured vehicles from attack by Nizh- and Zaslin-type weapon systems (the [Kharkiv-based] State Central Bureau of Critical Technologies Mikrotekh);
9. Ninth place goes to several millimetric frequency radar systems akin to the Barsuk and Manhust (Ukrspetstekhnika Holding Company in 2000-2004);

10. Rounding out the top 10 is Kontrast, a device to camouflage equipment (the Institute of Automated Systems, Ukraine's National Academy of Sciences) [10].

These are the well-known and used weapon, but not enough against such a cruel enemy as Ukrainian people have. Therefore, Ukrainian engineers, IT specialists, scientists of different fields, mechanics, millers and many others are working to create new weapons.

The **subject** of the article is military terminology in the time of the war, its problematic interpreting for the practical usage in the field of Material Sciences and others branches of Engineering; the terminology of the United States Patent Search; Description to The Patent for The Invention (Ukrainian Patent System).

The **methods** used in this article are: *comparative* – the best way to analyse lexical units, word formation (derivation) in bilingual society; *pattern seeking* involves observing and recording or carrying out experiments where the variables cannot easily be controlled; *identifying and classifying* involves sorting objects or events into groups or categories, develop and use clear systems (criteria); *method of definitional analysis*, that is used in dictionaries and researches.

The **goal of the article** is to show the difficulties in the ways to find the necessary term to describe the part of the military objects and propose the ways to avoid them.

The modern researchers' aim is to construct easy and cheap elements of the weapon to produce quickly on the base of enterprises of Ukraine. Searching the best decisions scientists of different institutions, countries are trying to investigate the new formulas and methods, materials and constructions to meet all the requirements of today's war.

Short literature review

During the last two years of Russian-Ukrainian war the terminology of military vocabulary has been filled significantly. Because of the huge help of our foreign partners the real flow of military words has come. It has been investigated in different ways and by several authors.

Valentina Ivanova Georgieva, the scientist from Bulgaria, offered a way to choose the right terms for military terminology, her work (*English military terminology and its knowledge organisation, 2022*) can help to identify the real meaning of the terms and to make this process easy and fast (*Language and the concept system*). Uzbekistan researchers [11] investigated the military terminology in their specific way: “ephemeral vocabulary associated with specific wars - not only weapons terminology and technical jargon, but also the colorful slang that inevitably characterizes every war”. The article “*Formation and Translation of Military Terminology*” (2022) (Iryna Striuk, et.al.) has described the ways how to translate from Ukrainian to English the military terminology in periodic, paying special attention to abbreviation and euphemisms widely used in naming of artillery. The authors of the work “*Extra-Linguistic Factors and Tendencies of Activation of Military Vocabulary in Ukrainian Mass Media*” (2022) (Maryna Navalna, et.al.) has the same goal to describe the development of Ukrainian military terminology in media: “We have analyzed only some well-known concepts, the proponents of which

emphasize non-linguistic factors that directly or indirectly affect the development of language in general and its lexical system in particular” [7]. *Durdu Biderkesen, Juliya Ageeva, Sevinc Ucgul* (2019) in their work “*Military Vocabulary as a Special Element of a Language Lexical System*” have analyzed the concept of “military terminology system”, its origin and position among other terminological systems of the language.

The war in Ukraine made the researchers of the whole world reorient their works in the field of military sphere: *Timothy Snyder* (2022) *The War in Ukraine is a Colonial War*; *Mary Dejevsky* (2024) *Weekend essay: A Year After the War in Ukraine Began, What Is the Endgame?*; *Jeffrey Mancoff* (2022) *Russia’s War in Ukraine: Identity, History, and Conflict*; *Brian Michael Jenkins* (2023) *Consequences Of the War in Ukraine: The Economic Fallout*, etc.

Discussion

There are a lot of different groups of the words in every terminology. The military terminology has been divided into specific groups, where the widest are two:

- *military equipment, weapons, ammunition*: javelin, surface-to-air missile, fighter jet, tank, drone, cargo plane, anti-tank weaponry, anti-aircraft (AA) warfare/air defense, rocket launcher/RPG (rocket-propelled grenade), missile, *shell*, target, flak jacket/bulletproof vest, helmet, weapons, bomber, armoured personnel carrier (APC)/vehicle, shelter, air raid siren, assault rifle, surgical strikes, thermobaric bombs, cluster bombs, mounted machine guns, belt-fed machine guns, howitzer, etc.;

- *military actions*: invasion, morale, go behind enemy lines, hold/lose a position, stand out, withstand, place tracking markers, make/throw Molotov cocktails, rebuff, utter defeat, to get the knock, capitulate, lay down one’s arms, fire/launch/intercept a missile, hit/miss/destroy/eliminate the target, give up, extract information, attack civilian targets, hold off the enemy, beat back the enemy, to besiege the city, be under threat of an aerial attack, face a fierce rebuff from, curfew, ejection, ground zero, guerrilla warfare, withdrawal, cease the fire, looting, disembarkation of troops, to hold someone in captivity, to push forward, retain a significant part of their fighting potential, blast / explode (explosion), etc.

Each of the group contains several sub-groups that are becoming narrower according to the stage of scientific interest. And even in these two groups there are some terms with the very wide meaning, e.g.: *shell* (5): 1) the hard outer covering of something, especially nuts, eggs, and some animals; 2) the basic outer structure of a building or vehicle, especially when the parts inside have been destroyed or taken or have not yet been made; 3) a container, usually with a pointed end, that is filled with explosives and shot from a large gun (Artillery and mortar shells were landing in the outskirts of the city); 4) a type of boat used for racing, driven by people using oars (= poles with flat ends); 5) a company that is used to hide illegal activities; 6) as a verb: to remove peas, nuts, etc. from their shells or their natural covering; 7) to fire shells at something.

Moreover, the term *shell* is used in very familiar word combination in the sphere of economics: shell company (Dutch and British) - a company that does not itself do or own anything, but is used to hide a person's or another company's activities, sometimes illegal ones. And the company "Shell" (with the well-known symbol of seashell) – is an international energy company that has been presented in the UK since 1897, where about 6,000 people work in the UK across a range of energy-related activities from exploration and production, to low and zero-carbon energy projects (the origin of the modern name of the company was based on the story, that in 1833, the founder's father, Marcus Samuel Senior, founded an import business to sell seashells of giant scallops to London collectors).

These are words often used in combination with *shell*:

- *abalone shell*: this book also stated that everyone at the time grew azaleas, even if the poorest people had to use an abalone shell as a container;
- *artillery shell*: he referred specifically to the 155 mm artillery shell and the 8 in shell;
- *band shell*: the band shell, site of dances and other entertainment during the war, remains on the site.

According to the requirements of the scientific researches in Ukraine to find out the new methods or technologies in the world system more than one hundred patents in the United States Patent Publications had been analysed.

The foreign researchers usually face with the problems of terms understanding, when preparing for patent and production. As an example there is an abstract of one of the American patent in military field: "A projectile entangling device, *cartridge* and method for entangling an object, lie *projectile* entangling device comprises a bolt slidably engaging within a receiver. A barrel is coupled to the receiver and is adjacent to a chamber. A gas conduit couples a compressed gas container to the bolt. A valve is positioned within the gas conduit. A trigger activates the valve and dispensing a compressed gas from the compressed gas container, through the gas conduit and exits the boll. A first *projectile* and a second *projectile* are positioned within the *cartridge*. A *tether* is coupled to the *first projectile* and the *second projectile*. The first projectile, the second projectile and the *tether* are propelled from the *cartridge* and expelled from the barrel upon the compressed gas exiling the bolt. The tether elongates for distancing the *first projectile* from the *second projectile* for defining an *expanding projectile* and entangling with the object".

The modern English-Ukrainian electronic dictionary shows the following results to demonstrate different meanings and derivatives of the term *shell casing*: *HE shell, HEF shell, armor-piercing shell, artillery shell, brass shell case, common shell, concrete piercing shell, fired shell, fragmentation shell, fused shell, gas shell, high explosive shell, high-explosive fragmentation shell, high-explosive shell, hollow-charge shell, incendiary shell, live shell, main bearing shell, mine shell, mortar shell, reinforced shell, rifle shell, rifled shell, rocket shell; shell*: *shell fragment, shell gun, shell shock, smoke shell, sub-caliber shell*. Thus, in such a huge amount of meanings the translator can be lost and the result can be not satisfied.

For the Ukrainian researchers (in both branches: Engineering and Linguistics) the problem is to find out the quick and resultative internet search of the terms and definitions: among millions of patents of Ukrainian and American patent databases. The aim is to improve/create the best variant of arm supply; to start the development and production of new materials to help the Military Forces of Ukraine with modern military equipment; to use the investigations of the world scientists; to apply the material, methods, constructions, and even chemicals in engineering.

According to the term formation requirements in Ukrainian system of terminology we have to use the only first meaning of the word to make it the term. It forms the problem for the foreigner scientists to choose the right word in terms searching.

The system of patenting in the USA is very diverse. The United States provides an opportunity to obtain *a utility patent*, *a design patent*, and *a plant patent*. That is, the Utility Model patent, which is common in many countries of the world, is not available in the USA. This should be taken into account when planning to apply for a patent in the USA under the national procedure or under the international PCT (Patent Cooperation Treaty) procedure, to which the USA is a party. In Ukraine patenting is not so complicated as in the USA and the search is much easier, but the scientific and productive development is the best in the world.

Before making an analyses of the next terms more than one hundred and forty US patents had been deeply investigated.

The example of the US patent description is the following: “the present invention provides a ***barrel of a firearm***, comprising: ***a barrel bore*** being defined within said barrel; ***a cartridge chamber*** being defined within said barrel from a head face to said barrel bore, said cartridge chamber having a generally tapered internal body wall surface; ***a cartridge case*** shoulder support surface; wherein the cartridge case shoulder support surface has a shoulder taper angle of about 30 degrees; and a ***shoulder transition*** connecting the ***cartridge case shoulder*** support surface to a throat in communication with the barrel bore, wherein the shoulder transition has a radius of circular curve convex segment 138 and a radius of circular curve concave segment 140” [1], where the highlighted word combinations have to be described.

Barrel of a firearms is “the tube through which the bullet moves when the gun is fired” [3];

A *barrel bore* means boring as the process of enlarging a hole that has already been drilled. But the word combination “barrel bore” is not mentioned in any dictionaries, that’s why it is necessary to find out the meaning of each element of the combination. *Barrel*: 1. countable noun, A barrel is a large, round container for liquids or food; 2. countable noun, In the oil industry, a barrel is a unit of measurement equal to 159 liters; 3. countable noun, The barrel of a gun is the tube through which the bullet moves when the gun is fired. *Bore*: bore 1. verb, if someone or something bores you, you find them dull and uninteresting; 2. Bore to tears/ bore to death/ bore stiff; 3. countable noun, you describe someone as a bore when you think that they talk in a very uninteresting way; 4. singular noun, you can describe a situation as a bore when you find it annoying; 5. verb,

if you bore a hole in something, you make a deep round hole in it using a special tool; 6. verb, if someone's eyes bore into you, they stare intensely at you; 7. countable noun [usually supplement noun], a bore is a very large wave that moves quickly up certain rivers from the sea at particular times of the year as a result of unusual tides; 8. *Bore* is the past tense of bear; 9. also bored, boring.

Thus, in the word combination *barrel bore* the first element *barrel* is used in its third meaning and the second element *bore* is used in its fifth meaning.

A cartridge chamber: cartridge: pl. cartridges: 1. countable noun, a cartridge is a metal or cardboard tube containing a bullet and an explosive substance; 2. countable noun, a cartridge is part of a machine or device that can be easily removed and replaced when it is worn out or empty. Synonyms: *container, case, magazine, cassette*. This is the first example of the perfect term for the foreign translation, where the first meaning coincides with the term definition, that makes easy to search the necessary element of the weapon.

Chamber: pl. chambers: 1. a chamber is a large room, especially one that is used for formal meetings; 2. countable noun: you can refer to a country's parliament or to one section of it as a chamber; 3. a chamber is a room designed and equipped for a particular purpose; 4. See also gas chamber; 5. a chamber is a hollow place inside the body of a person or animal, or inside a plant; 6. plural noun: the offices used by judges and barristers are referred to as chambers. This part of the word combination *cartridge chamber* can be implemented in its figurative sense, which is not common for the term derivation.

The other synonymic word combination is *a cartridge case*. In Collins dictionary it is *a cylindrical, usually metal casing capable of being loaded with an explosive charge and often also a bullet* [3], where the meaning is absolutely clear, logical, and precise.

But the previous word combination is complicated with one more word *cartridge case shoulder*, where the last element means: 1) your shoulders are between your neck and the tops of your arms; 2) the shoulders of a piece of clothing are the parts that cover your shoulders; 3) when you talk about someone's problems or responsibilities, you can say that they carry them on their shoulders; 4) *if you shoulder the responsibility or the blame for something, you accept it*; 5) if you shoulder something heavy, you put it across one of your shoulders so that you can carry it more easily; 6) if you shoulder someone aside or if you shoulder your way somewhere, you push past people roughly using your shoulder; 7) a shoulder is a joint of meat from the upper part of the front leg of an animal [3]. The only way to explain the meaning of the element *shoulder* is the fourth one, where the *shoulder* is closer to the synonym verbs *bear, carry*. In an arm they can use *shoulder* as a *bearing system* for the bullet. But in the American patent the part of the sentences *a cartridge case shoulder support surface* denies it, *shoulder* is used as an adjective.

The second page of the patent contains the same problematic items in terming: “The present invention provides *a chambering device* for a barrel of a gun comprising: a shank extending longitudinally between a front end and a rear end and having a plurality of *cutting flutes* disposed between the front end and the rear end; a shaft extending to the rear end of the *shank* and adapted to rotate the shank along an interior of the barrel to form a chamber therein, wherein the shank comprises a body region that extends to a

shoulder region that transitions to *a case mouth* that extends to a throat connected to *a free bore*, wherein the body region comprises a rear diameter near the *breech face* of about 0.4718; and a body shoulder junction diameter of about 0.4625; wherein the shoulder region comprises a shoulder case mouth junction diameter is between 0.31 to 0.32; a breech face to lead-in *bore junction* length of between 2.1 to 2.2; a breech face to body-shoulder junction length of between 1.80-1.85; and a breech face to *shoulder neck junction* length of between 1.9-2.0.

According to the previous definitions of *chamber* chambering device is something like container for details, but the term *device* is out of understanding: 1) a device is an object that has been invented for a particular purpose, for example for recording or measuring something; 2) a device is a method of achieving something [3].

Cutting flutes is the most unusual word combination in military terminology: the main word flute means: a flute is a musical instrument of the woodwind family. You play it by blowing over a hole near one end while holding it sideways to your mouth [3]. In a military context *flutes* can refer to the *flutes on a rifle barrel* (the holes on the tubes like in musical flutes).

Shank is the term that helps to understand the engineering design of the arms and has several meanings: 1) the shank of an object is the long, thin, straight part of the object; 2) shanks are the lower parts of the legs; used especially with reference to meat. In British English *shank* has 13 meanings among them only the 12th is suitable for engineering: a ladle used for molten metal. In military dictionary there are some word combinations with the shank as an element: *blade shank, change-level shank, sheepshank knot, valve rocket shank* [English-Ukrainian Dictionary of Military Terms].

The term “*a case mouth*” has the same indirect meaning for military terminology and there is no description of it as a combination, that’s why it is analysed as two separate words: *case*: 1) a particular case is a particular situation or incident, especially one that you are using as an individual example or instance of something; 2) a case is a person or their particular problem that a doctor, social worker, or other professional is dealing with; 3) if you say that someone is a sad case or a hopeless case, you mean that they are in a sad situation or a hopeless situation; but in a dictionary of military terminology there are a lot of word combinations with the element “*case*”: *ammunition case, antipersonnel HE miniature plastic case mine, armored case, bomb case, brass cartridge case, brass case, brass shell case, case extractor, case head, case management, case of mine, combat exhaustion case, compass case, empty case, first aid case, grenade case, gun-carrier case, in case of emergency, magazine case, metal case, mine case, molded plastic case, outer case, pyrotechnical case cutting, rocket case, rocket motor case, rocket-motor case, telephone set case, weapon case; mouth*: 1) your *mouth* is the area of your face where your lips are or the space behind your lips where your teeth and tongue are; 2) you can say that someone has a particular kind of *mouth* to indicate that they speak in a particular kind of way or that they say particular kinds of things; 3) the *mouth* of a cave, hole, or bottle is its entrance or opening [3]; in a dictionary of military terms the element mouth is the part of only one combination: *ammunition box mouth* [12].

Collins Dictionary gives the following meaning for the terminological combination *breech face*: new word suggestion (2013): *The front part of the breechblock that makes contact with the cartridge in a firearm*; the term breech is used in its first meaning: 1) the *breech* of a gun is the part of the barrel at the back into which you load the bullets. In a military terminology they have several combinations with the element *breech*: *breech, breech end, breech mechanism, breech ring, breech screw, bullet breech, gun breech, lever breech, mechanism, mortar breech piece, rifled breech loader, rifled breech loading gun, sliding breech*.

Conclusions

The terms in patent science of the US patent system have the following main features in the field of military terminology:

- 1) when creating terms, the requirements of unambiguity were not met, which makes it difficult for a foreign researcher to understand;
- 2) polysemous words and word combinations are allowed in the formation of the terminological system of military nomenclature;
- 3) without the use of pictures, diagrams, drawings, it is sometimes impossible to identify a term/term combination, which makes it impossible to choose the right term;
- 4) even in specialized dictionaries, it is not always possible to find the required word/phrase, since production is ahead of the creation of dictionaries, even electronic ones;
- 5) in Ukraine the patent bureaus can support the researchers, but not in the way of US patenting;
- 6) military terminology has to be studied by the both - linguists and engineers;
- 7) every enterprise of Ukraine needs to have foreign languages offices to support engineering production.

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