Terminological Activities: Principles and Perspectives

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I n terminological activities we may discern two aspects: theoretical activities, or terminology science and practical activities, or terminology work. In the ISO WD 1087:94 <u>terminology science</u> is defined as the scientific study of the concepts and the terms *found in special languages*. (The last part in our opinion is superficial and unnecessary, because concepts and terms belong to special languages and hardly may be expected elsewhere.) According to the same document <u>terminology work</u> is any activity concerned with the systematisation and representation of concepts, or with the presentation of terminologies on the basis of established principles and methods. Later official version of this document (ISO 1087-1:2000) offers a similar definition: "Work concerned with the systematic collection, description, processing and presentation of concepts and their designations", though terminology science is defined differently as "science studying the structure, formation, development, usage and management of terminologies in various subject fields", thus excluding concepts from its scope.

Analysis of terminological publications shows historic variations in relation between theoretical and practical activities. At the beginning, in the first half of the 20th century theoretical investigations were subordinated to the practical tasks and problems — initially ordering terminologies. The first terminological groups, which appeared at the beginning of the twentieth century in Lithuania and Latvia as well as the pioneers of terminology science — Eugen Wüster, Dmitrij Lotte, Ernest Drezen, Grigorij Vinokur and Aleksandr Reformatskij had to deal with defining

the main properties of special lexemes and finding the ways to deal with their drawbacks. According to prof. Heribert Picht, up till the end of the 1950s Wüster was mostly interested in practical aspects of terminology work (Picht 2011: 10–11).

Later, starting in the fifties of the previous century, in linguistics appeared a considerable interest in terminological problems and this resulted in a multitude of purely linguistic investigations and descriptions of various terminologies which were not immediately connected with the practical terminological work and thus lead to divergence in theory and practice. Indirect result of the absence of theoretical support of practical decisions was a large number (more than 500) of terminological standards of poor quality prepared in the 1960s–1970s in the USSR.

However, somewhat later, in the 1960s and the 1970s a number of directions of terminological research of applied nature started to form. This was characterised by regional specific interests, for example Saint Petersburg scientists investigating history of various terminologies (Ку-тина 1966, 1970; Сорокалетов 1970; Герд 1968, 1971), Gorky linguists concentrating their attention on functioning of terms and terminologies in speech (Головин 1981; Кобрин, Пекарская 1977), Voronezh termi-nologists specialising in applying statistical methods to terminology research and problems of elaboration and assessment of translating dictionaries (Иванов 1967; Анюшкин 1978), Omsk terminologists attracted by problems of history of terms and also in sociolinguistic aspects of terminology (Ткачева 1987а, б and her disciples), while Moscow scientists inclined towards summing up terminological experience (Akhmanova, Agapova 1974; Akhmanova 1977; Гринев 1993; Даниленко 1971, 1977; Канделаки 1977; Лейчик 1989; Суперанская, Подольская, Васильева 1989, 1993).

In 1980s–1990s as the result of wide scope of terminological research resulting in more than 100 annually defended dissertations (Grinev 1993), a number of terminological disciplines emerged, including comparative terminology science, concerned with translation and harmonisation of terminology (Лейчик 1988; Циткина 1987, 1988); terminography, concerned with optimization of design and elaboration of terminological dictionaries and term banks (Герд 1986; Гринев 1986, 1995; Марчук 1992), historical terminology science, concerned with discovering trends in development of concepts and terminological forms (Ткачева 1987б;

Дианова 1995, 2000; Хижняк 1997а, б; Борнхвальд 2000; Фельде (Борнх-вальд) 2001) and typological terminological science concerned with establishing general and specific features of terminologies (Казарина 1998; Володина 1997; Авербух 2004; Сложеникина 2005).

In the Russian standards of the 1960s and partially 1970s due to the huge amount of work to be done in a short time, the above mentioned divergence in theory and practice and the absence of trained terminologists and methodical materials (the first instruction on standardising terminology appeared only in 1977) one may find all of the classical mistakes in defining concepts and choosing optimal terminological forms. The absence of preliminary systematisation and coordination resulted in overlapping standards containing the same terms with different definitions with the concurrent absence of standards for a number of subject fields. At the same time in the 1970s–1980s there was accumulated a considerable experience of coordination in preparing information retrieval thesauri that may be used in organising systemic ordering of special vocabulary. With an established interest of linguists in terminological problems, standard guides and instructions on organising terminological work throughout the country were worked out, for:

- organising leading branch organisations responsible for standardising terminology;
- organising and managing branch bases of standardised terminology;
- co-ordinating of standardising terminology with developing linguistic means of information retrieval systems;
- co-ordination of separate terminologies within the general system of terms;
- standardising terminology;
- standardising abbreviations of words and word-combinations for the Russian language;
- harmonising terminology, etc.

A number of directions of **terminology work** had taken shape in Russia at the end of 1980s. One of them is ***terminological inventory*** — collection and preliminary description of special lexemes of the chosen subject field — which may take form of an independent work resulting in descriptive terminological dictionary, though usually it serves as a preliminary condition

and stage of **terminology ordering** — the central and most important terminological work aimed at transforming **terminologies** — naturally formed collections of terms of particular subject fields into **term systems** — ordered sets of terms with the established relations between them reflecting the respective relations between concepts. Experience showed the complex nature of terminology ordering which consists of a number of stages, described by prof. Picht (Picht 2009: 15–16) and in the ISO 704 *Terminology work: Principles and methods.*

Other directions of terminological work included:

co-ordination of national terminological activities (a complex of actions towards establishing system of institutions and projects committed to regulating and advancement of national terminologies);

co-ordination of separate terminologies within the general system of terms;

design and **construction of term-systems** for new fields of knowledge; here, besides creating a new term-system based on certain patterns, a set of rules for forming new terms is elaborated and suggested;

terminographic work — compiling various terminological dictionaries and data bases;

terminological editing;

terminological expertise;

terminological translation;

terminological documentation and information services;

normalised terminology implementing;

terminological training of specialists;

terminological training of non-specialists;

terminological management;

terminology planning.

Directions of terminological research were shaped by the problems which had to be solved in terminological work. As the result of such research some theoretical principles concerning various stages and types of terminological work were formulated. These principles do not belong exclusively to the Russian scientific school, because they were worked out collectively with participation of terminologists from practically every former Soviet Republic.

It is assumed that terminology science deals with the principles of:
- elaborating general methods of study of terminologies;
- investigating the main types of concepts, their definitions and relations between them;
- identifying and describing the main types of special lexical units, analysis of their peculiarities;
- semantic (semasiological) analysis of terminologies;
- structural (onomasiological) analysis of terminologies and main means of forming new terms in various languages and various fields of knowledge;
- analyzing peculiarities of formation and development of terminologies in various languages and various fields of knowledge;
- establishing the optimal principles of designing, elaborating and perfecting various types of dictionaries;
- comparative analysis of various modes of implementing normalised terminology;
- elaborating effective means of terminological editing and terminological expertise;
- elaborating effective means of terminological translation;
- establishing effective methods of terminology training;
- lately, thanks to prof. Picht's constant reminders, investigating other than verbal, semiotic denotations of concepts;
- investigating the role of terminologies in cognition and acquiring knowledge, as well as in special education and communication;
- elaborating main principles of organisation of national terminological activities and terminology planning.

There were many Russian publications concerned with the **methods of study of terminologies**. Some of the general methods were already shortly described in Grinev-Griniewicz (2011).

In **investigating the main types of concepts** it seems necessary to pay attention to differentiating *natural* or *flexible concepts* which are concepts, having a finite number of essential features which form the nucleus of the concept and a flexible periphery, where there is no settled and universally accepted opinion and *matrix concepts* — precisely defined and universally approved — the former not mentioned in the existing guides on ordering terminology. Investigating the main types of concepts and relations between them is traditionally considered the domain of

logicians. However, when it comes to definitions terminologists succeeded in adding some requirements of linguistic character, such as uniformity of syntax and lexical features in definitions of similar concepts, brevity of definition with exclusion of redundant information and idle expressions, avoiding unnecessary definitions when the specific features are represented in the form of term (Гринев 1993: 89–90; Гринев-Гриневич 2008: 85–87).

Identifying and describing the main types of special lexemes started with the problem of establishing specific features of a term in contrast to a common word. At the end of the 1970s the dispute concerning the difference between a term and an ordinary word finally was settled on the basis that term denotes a *concept* — a unit of knowledge created by a unique combination of characteristics, and the ordinary word denotes a *notion* which is a sensory-direct, generalised image of objects and phenomena of reality that is preserved and reproduced in memory without the direct influence of those objects and phenomena on the sensory organs. On the scale of consciousness notions are a step lower than concepts and belong to the level of memory. Discovering at the same time that special vocabulary is not limited to terms only, caused some consternation and the need to identify and describe the main types of special lexical units. Already in the 1980s such main types as terminoids, pre-terms, quasi-terms, proto-terms, professionalisms and nomens were generally described (Grinev 1996; Гринев 1993: 41–52; Шелов 1985), though not investigated as thoroughly as terms, the number of various revealed features of terms reaching more than two hundred — 265 (Гринев 1998: 61–76). It seems expedient to study all of the special lexemes further with the special attention towards nomens — names of unique concepts, and that for two reasons. Firstly, they lately prevail in special lexicons, making up, perhaps 99% of the overall number of special lexemes; and secondly, a large part of them may be easily regulated and formed according to certain rules.

Ordering terms has two aspects — **unification** aimed at eliminating discrepancies between lexical meaning of a term and terminological meaning (the content of respective concept) and **optimisation**, concerned with the choice of the optimal forms and means of forming terms. The corresponding directions of research became traditional in terminological studies and nowadays took the shape of respective terminological sub-disciplines — semasiological terminology science and onomasiological terminology science.

Ordering terms should presuppose a multi-aspect analysis of terminology, which is carried out with the aim of establishing not only the existing drawbacks but also tendencies of its development. Such investigation should consist first of <u>semantic analysis,</u> with the aim to find out various deviations from the one-to-one correspondence between the lexical and terminological meanings of terms. There also should be carried out <u>formal-structural</u> and <u>etymological analyses</u> — to establish the most effective means and patterns of producing terms in the chosen subject field, as well as the existing unsuitable forms and means of their improvement or substitution; then <u>functional analysis</u> to find peculiarities of usage of terms (Гак, Лейчик 1981) and finally <u>diachronic analysis</u> to discover tendencies of development of the chosen terminology (Алексеева 1994; Алесенко 2000; Клепальченко 1999; Миронова 2002; Филиппова 1996; Герд 1971; Кутина 1964, 1966), and parametric approach (Grinev 1992; Grinev-Griniewicz 2011: 30). Such approach may ensure right decisions in forming a term system.

In **semantic analysis of terminologies** there is still much to be done. In synonymy it seems expedient to establish a generally accepted classification of synonyms and also to define more precisely ratio of various types of full synonyms which may be used as lexical resources for creating names of species in the process of cognition. Apart from synonymy and polysemy there were found other types of discrepancy of lexical and terminological meanings. Sometimes meaning of the lexical form may contain superfluous characteristics — in tautological terms, such as *living flats*, *living houses*, *traumatic injury*, *plans for the future*, or, on the contrary, it may lack the essential characteristics of the concept. These are cases of using a lexical form with a broad meaning for a narrow concept — the British standard BS 4118:1967 *Glossary of Sanitation Terms* suggests the term *capacity* for naming a very specialised concept "storage cistern capacity", term *angle* in the meaning "a fitting used on a rainwater gutter to change the direction of the gutter" and term **chair** in the meaning "a metal frame for building into a thin partition wall and the floor so as to provide means of supporting a wash basin, W.C. pan or other sanitary appliance clear of the floor". In the British Standard BS 2780:1972 *Glossary of leather terms* the broad term *bend* is presented in the narrow meaning — "half of a cattle hide butt, obtained by dividing it along the line of the backbone", etc. It also becomes necessary to investigate a new phenomenon

which is paronymy playing the role of limit in using term variation in creating new related terms (for example terms *onomasiology* and *onomastics* are often confused by the philology students).

Analysis of the **main means of forming new terms** is necessary for choosing the most effective ones. Their classification is presented in Grinev–Griniewicz 2011: 36; here we may state their main merits and faults.

Semantic term-formation. One of the oldest, traditional ways of forming new terms is metaphoric transfer of the meaning of a common word (later of a term) on the basis of comparison. It is based on two main types of similarity — <u>exterior</u> similarity of shape, e.g. *neck* and *body* (of a column), *teeth* (of a saw), *hood* (of ventilator) or position, e.g. *foot* (of a page, of a mountain), *head* (of a bolt); and similarity of <u>function</u>, e.g. *horn (alarm signalling device*); *leader* (directing gutter of roof drain).

Terms may be also formed by metonymy — a transfer of the meaning on the basis of contiguity. There are various types of metonymy:
- the material of an object may become the name of the object, e.g. *a glass*, *boards*, *iron* etc.;
- name of the place may become the name of an object found or produced there, e.g. *canary* (bird), *turkey*, *china* (porcelain), *cashmere* (woollen fabric);
- names of inventors often become terms denoting things they invented, e.g. *watt*, *ohm*, *roentgen*, etc.;
- name of a process often acquires a secondary meaning of: a) result of the process: *classification* (process) – *classification* (result), *definition* (process) – *definition* (result), *borrowing* (process) – *borrowing* (result); b) means of carrying out an action: *catch* (action) – *catch* (window or door device); *spray* (action) – *spray* (device); c) place of action or respective construction: *market* (trade) – *market* (construction). Some names of operations, such as *cladding*, *coating*, *flooring*, *insulation* and *wadding* are also used to name both source material and result.

Chronologically next is specializing the meaning of an everyday word or a broader term, e.g. *case* with a general meaning "circumstances in which a person or a thing is" is specialised becoming a term in law (a law suit), in grammar (a form in the paradigm of a noun), or in medicine (an illness). *Elevation* in linguistics becomes *elevation* (of meaning); in building we have *lime* (cement) formed from a word meaning "any gluing substance".

Chronologically later appears borrowing from other terminologies: in building terms *anchor*, *awning* came from naval terminology, *antennas* — from biology, *landscape* — from painting terminology, *trench* — from military terminology, etc.

Semantic term-formation is responsible for approximately 3% of the special vocabulary, though in the young terminologies the amount of such terms is greater, but they usually form the nucleus of terminology and are used as base for derivation, composition and word-combination (Гринев 1993: 134). They are short, motivated and are frequently used, often are hyperonyms, many of them are names of terminologies. At the same time usage of semantic term-formation leads to polysemy and homonymy. When such homonymic forms are used in different subject fields it does not cause any problems (terminological form *morphology* is used quite conveniently in biology, geology and linguistics), but when as the result of semantic transfer two forms are used in the same science, as, for example *doublet* (etymological) and *doublet* (absolute synonym) in lexicology, or as names of processes, their means and results, it becomes very inconvenient.

Morphologic term-formation accounts for about 5% of the whole special vocabulary (Гринев 1993: 134). The most productive means of morphologic term-formation is suffixation. Analysis of the usage of suffixes in coining new terms reveals some interesting phenomena. Firstly, there is a tendency to express categories by certain suffixes:

- processes by the suffixes *-ing*/1/ and *-ation*/1/ − *extracting*, *polishing*, *excavation*, *discolouration*;
- agents by the suffixes *-er*/1/, *-or*/1/, *-an* − *welder*, *expeditor*, *electrician*;
- equipment by the suffixes *-er*/2/ (*-or*/2/) − *scraper*, *loader*, *ventilator*;
- results by the suffixes *-ing*/2/, *-ation*/2/ − *flooring*, *insulation*;

Here we also find specialised suffixes of minerals: *-ite* − *biotite*, *diatomite*, *chromite*; and chemical substances: *-ate*, *-ine*, *-ide*, *-oid*, *-um* − *chlorate*, *chlorine*, *chloride*, *celluloid*, *calcium*.

Secondly, we may notice both synonymy and polysemy of suffixes: suffix *-er/or* may be used to form terms with the following meanings: <u>agent</u>, doer of the action expressed by the stem (*speaker*), <u>profession</u> (*teacher*), a <u>tool</u> (*transmitter*), a <u>chemical agent</u> (*retarder*, *hardener*, *plasticizer*), lately a <u>computer program</u> (*driver*, *supervisor*).

Prefixation is forming terms by means of adding a prefix to the stem. Prefixes are often used to specialise the meaning of term and form names of its varieties: *affixes* are divided into *prefixes*, *postfixes*, *suffixes*, *infixes*, *interfixes*, *circumfixes*, *transfixes*. Prefixes may be divided into a) prefixes of negative meaning, such as: *in-* (*indigestion*), *non-* (*nonformals*), *un-* (*unrest*), etc.; b) prefixes denoting repetition or reversal actions, such as: *de-* (*defragmentation*, *desynonymisation*), *re-* (*revegetation*), *dis-* (*disconnection*), c) prefixes denoting time, space, degree relations, such as: *inter-* (*interplanetary*), *hyper-* (*hypertension*), *ex-* (*ex-student*), *pre-* (*pre-stressing*, *pre-terms*), *over-* (*overextension*), etc.

Morphological means allow for short, structurally motivated and systematic terms, though polysemy of suffixes causes the same problems as with semantic means.

Syntax term-formation (combining words) is the most productive means of replenishment of terminology — 60–95% of new terms appear in this way (Гринев 1993: 141). In this way of term-formation free word combinations are transformed into equivalents of words. For the emerging new concepts, especially species of the existing concept it is often easy to name them so that their names would point to the general idea. When new types of *saws* appeared, such as *continuous saws*, which were further specialized into *disc continuous saws* and *chain continuous saws*, the names of the species were easily formed by combining words.

The simplest type of terminological word-combinations is bi-lexemic form that accounts for two thirds of the whole number of polylexemic (multi-word) terms. In the English construction terminology three-word terms make up 30% and four-word terms make up 5,5% of the general number of multi-word terms (Гринев 1993: 146, 149).

This means of naming concepts produces explicit, structurally motivated and highly systemic terms, but results in lengthening term forms which become cumbersome. With appearance of longer forms they become inconvenient in use and tend to be substituted by shortened variants.

Morpho-syntax term formation includes three types of shortening word-combinations usually to monolexemic (one-word) terms. They are:

a) ***ellipsis*** (syntactical shortening) when a word-combination loses its semantically weak noun, e.g. *a grown-up person* is shortened to *a grown-up*, *cathedral church* to *cathedral*, *porter's ale* to *porter*, *smoking jacket* to *smoking*, or a semantically weak attribute, e.g. *window mullion – mullion*, *nuclear reactor – reactor*;

b) **composition** is the way of shortening word-combination by joining two or more stems to form one word: *class room* > *classroom*, *pad lock* > *padlock*, *aircraft-carrier*, *bed-sitting-room*;

c) **abbreviation** – shortening of word-combinations by omitting parts of words, e.g. *permanent frost* > *permafrost*, *helicopter port* > *heliport*, *ampere meter* > *ammeter*, *motor hotel* > *motel*, including initial abbreviation – *damp-proof course* > *dpc*, *water closet* > *wc*, or acronymy – *light amplification by stimulated emission radiation* > *laser*, *dual income no kids yet* > *dinky*, *self-contained underwater breathing apparatus* > *scuba*.

The earliest of them in terminology is ellipsis. If the noun is omitted it is accompanied by substantivation of an attribute (adjective becoming a noun), e.g. *explosive* (substance), *expletive* (word), *dovetail* (joint), *oil* (paint), *detergent* (agent), *laundry* (room). In cases of perfect substantivation the attribute takes the paradigm of a countable noun, e.g. *a criminal*, *criminals*, *a criminal's* (mistake). There are also two types of partly substantivized adjectives:

- those which have only the plural form and have the meaning of collective nouns, such as: *sweets*, *news*, *empties*, *finals*, *greens*, *asphalts*;
- those which have only the singular form and are used with the definite article. They also have the meaning of collective nouns and denote a class, a nationality, a group of people, e.g. *the rich*, *the English*, *the dead*.

Among terms formed in this way we find many words formed from names of places: *Carrara marble* – *carrara*, *Attic storey* – *attic*, *Panama hat* – *panama*.

The chronologically next type is composition. The structural unity of a compound word depends upon:

a) unity of stress;
b) solid or hyphenated spelling;
c) semantic unity;
d) unity of morphological and syntactical functioning.

Diachronic analysis of compounds shows that the process of transformation of word-combination into a word is reflected in replacement of separate writing by the hyphened and then solid spelling:

1480 – quick sand, 1610 – quick-sand, 1700 – quicksand;
1511 – hot house, 1544 – hot-house, 1625 – hothouse;

1536 – ware house, 1609 – ware-house, 1660 – warehouse;
1569 – pad lock, 1703 – pad-lock, 1874 – padlock;
1583 – earth quake, 1635 – earth-quake, 1719 – earthquake.

Nowadays spelling of English compounds is not very reliable either because they can have different spelling even in the same text, e.g. *warship* can be spelt solidly or with a hyphen, *blood-vessel* can be spelt with a hyphen but also with a break, *insofar*, *underfoot* can be spelt solidly or with a break. In addition there has appeared in Modern English a special type of compound words which is called <u>block compounds</u>, they have one uniting stress but are spelt with a break, e.g. *air piracy*, *cargo module*, *coin change*, *penguin suit*, etc.

In abbreviation the tendency towards shortening of the term form could be noticed in <u>compound</u>-<u>shortened words</u>, e.g. *boatel*, *tourmobile*, *V-day*, *motocross*, *intervision*, *Eurodollar*. It begins with slight shortening of one of the components — *praseodymium* from *praseo* + (di)*dymium*, *ammeter* from *am*(pere) + *meter* and finally takes form in initial abbreviation word combination being shortened to initial letters: *potential difference* – PT, *pulverised fly ash* – PFA. There are three types of initialisms in English:

a) initialisms with alphabetical reading, such as *UK*, *TV*, etc.;

b) <u>acronyms</u> which are read as if they are words, e.g. *UNESCO*, *UNO*, *NATO*, scuba, dinky, etc.;

c) acronyms which coincide with English words in their sound form; e.g. *CLASS* (*Computer-based Laboratory for Automated School System*).

Patterns are continuations of means of term-formation. Particular means, such as, for example, suffixation, are further subdivided into subsequent patterns, such as patterns of doer: *-er/1/*, *-an*, *-ist*, etc. Terminological nomination pattern may be defined as intersection of two types of patterns — structural and semantic. By structural pattern we understand discerning in the formal structure of a term at least two constituents called term-elements, represented by morphemes or words, i.e. load<u>er</u> – loading <u>device</u>. Semantic models are determined by the relation of semantic components of a term. One of the most important tasks of terminologist is to find particular structural patterns, optimal for expressing categories and logical relations between them.

For example in the majority of technological fields of knowledge we may single out six major categories — all of technological **operations**

aim at producing from the source **material** certain **products** with the help of **equipment** used by **operator**, belonging to a certain profession. All of the mentioned categories possess certain **qualities**. In many cases relations between these categories are represented in certain semantic patterns that, coupled with definite structural patterns (affixal, compositional, syntax — in the case of word-combinations) form the following main types of terminological patterns.

NAMES OF OPERATIONS

relation	examples
<u>material – operation:</u>	*plastering, bricklaying, concrete placing*
<u>operation – operation:</u>	*boring tunnelling, blasting tunnelling*
<u>equipment – operation:</u>	*boring, pumping, transport operations*
<u>operator – operation:</u>	
<u>product – operation:</u>	*roadwork, floorlaying, roofing*
<u>quality – operation:</u>	*hot welding, electrical treatment*

NAMES OF MATERIAL

material – material:	*slag concrete, asbestos cement*
operation – material:	*reinforced concrete*
equipment – material:	*instrumental steel, jetcrete*
operator – material:	*painter oil*
product – material:	*wall brick*
quality – material:	*heavy concrete, raw material*

NAMES OF EQUIPMENT

material – equipment:	*concrete equipment*
operation – equipment:	*boring equipment, finishing tools*
equipment – equipment:	*filter-press*
operator – equipment:	*painter brush, bosun's chair*
product – equipment:	*trencher, trench digger*
quality – equipment:	*hydropump*

NAMES OF OPERATOR

material – operator:	*bricklayer, woodworker, charcoal burner*
operation – operator:	*baker, shotfirer*
equipment – operator:	*crane-operator, elevator operator*
operator – operator:	*builder broker*
product – operator:	*accounter, musician, barrelman, stove-maker*
quality – operator:	*electrician, chief officer, visiting lecturer*

NAMES OF PRODUCT

material – product:	*metal structures*
operation – product:	*boring well*, *crushed stone*
equipment – product:	*saw dust*
operator – product:	
product – product:	*pile shell*
quality – product:	*pneumostructures*, *rigid frames*

NAMES OF QUALITIES

material – quality:	*water clarity*
operation – quality:	*boring speed*
equipment – quality:	*truck capacity*
operator – quality:	
product – quality:	*prefabricability of construction*
quality – quality:	*true porosity*

Apart from these patterns the form of term may represent relations whole–part — *wall block*, *car tyre*, quality — *natural process*, *chemical weathering.*

The attitude towards **borrowing** as means of terminological nomination should be based on realising that the majority of cases involve transfer of lexical forms, so borrowing should be viewed as a source of material forms. If we compare borrowing with other means of term formation: using the already existing forms to carry new meanings, derivation, producing word combinations – we may see that borrowing has certain merits. Endorsing the existing words with new meanings results in homonymy, which may be inconvenient in terminology. Derivation is limited by the fact that it is impossible to form derivatives from some terms. Producing terminological word-combinations always results in increasing length of terms and leads towards transformation of terms into descriptions. Borrowings are devoid of these drawbacks. They are devoid of connotations that may arise in transfer of meanings of the common words. Their merit is the easiness of making new forms which is important nowadays, when the rapid development of science and technology generates the constantly increasing demand for new lexical forms to denote new concepts. This is confirmed by appearance in many languages of etymological doublets as a result of borrowing one and the same lexical unit via different mediator languages and receiving different forms owing to inevitable distortion of the same word in different languages. Thus in

Russian appeared pairs of terms like *асбест* (asbestos) – *известь* (lime), *шторм* (storm) – *штурм* (assault), *реестр* (list) – *регистр* (sound range), *кристалл* (crystal) – *хрусталь* (cut-glass), etc. In such cases different forms of etymologically the same borrowed word are regarded as independent terms. This is also true for borrowing different grammatical forms of the same word: *кекс* (cake) – *кек* (dry sludge), *кювет* (ditch) – *кювета* (cuvette in photography).

The existing need for lexical forms and expediency of borrowing is also confirmed by appearance of common fund of special lexemes (international terminology) as a result of borrowing into many languages from the same source language. For example, in architecture the Arabic term *alcove* was borrowed into many languages En. *alcove*, Fr. *alcove*, Rom. *alcove*, Sp. *alcoba*, De. *alkoven*, Hung. *alkov*, Cz. *alkovna*, Pl. *alkowa*, S-Cr. *alkov*, Bul. *алков,* Ru. *альков*, Mon. *альков*. Another term — *amphitheatre* was borrowed from old Greek taking forms *amfiteatr* in Czech, *amphitheatre* in French, *Amphiteater* in German, *amfiteatrum* in Hungarian, *amfiteatras* in Lithuanian, *amfiteatr* in Polish, *amfiteatru* in Romanian, *amfiteatar* in Serbo-Croatian, *anfiteatro* in Spanish, *амфитеатар* in Bulgarian, *амфитеатр* in Mongolian, *амфитеатр* in Russian.

At the same time borrowing results in unmotivated terms, devoid of semantic transparency and lacking systematicity (apart from borrowing the whole systems of terms).

When we are dealing with optimising of terminological forms, we are trying to change inconvenient forms and to choose the optimal forms in accordance with requirements towards ideal term listed in (Grinev-Griniewicz 2011: 33–35). Optimisation is an art because some requirements are in contradiction, e.g. motivation and international character, brevity and exactness of meaning and that makes the choice of optimal forms difficult.

There are various situations when we may change the form of term relatively easily. It happens when we have synonyms with better form; when the progress of science and change in the concept requires change in the existing form or introduction of a new form; when a new concept appears; when searching for equivalent to the foreign term in the process of translation.

When using semantic means in some cases the problem of polysemy may be solved by using the existing variants of the term, for example *classifying* (action) – *classification* (result), *defining* (process) – *definition* (result).

When long word-combinations appearing as the result of applying syntax means of nomination are frequently used they are often shortened, e.g. *air cooling equipment – air cooler*, *cable car railway – cable railway*, *cable pulling tools – cable tools*.

Analyzing peculiarities of formation and development of terminologies facilitates the choice of ways of producing new terms. In medicine, as the result of typological research it was found that there are three types of terminologies. The first one is used in various branches of surgery (general, abdominal, neurosurgery, cardiovascular, traumatology, etc.) and is characterised by using precise, Latinised, usually compound international forms. Terminology used in hygiene (general, communal, personal, professional) is close to common vocabulary, imprecise and has national character. Terminology of branches of clinical medicine uses both types of terms with a slight predominance of the first type.

Establishing the optimal principles of designing, elaborating and perfecting various types of **dictionaries** is thoroughly discussed in (Гринев-Гриневич 2007). Suffice it to say that on the basis of experience in compiling at the same time several types of dictionaries and comparison of more than 300 defining and translating terminological dictionaries an optimal procedure was elaborated for compiling a dictionary of a good quality on the basis of the preliminary chosen <u>scope</u> (general, branch, specialized), <u>purpose</u> (defining, translating, normalizing, educational) and number of languages to be covered (monolingual, bilingual, poly-lingual).

Registration of the normalised term system used in **implementing normalised terminology** may take various forms:

- standardising (the strictest form used for technical terminologies);
- recommending (the less demanding form used by the Committee for Scientific and technical terminology of the USSR Academy of Sciences for scientific terms);
- indirect ways of normalising terminology usage in information systems.

Experience gained in the last years added a new form which was found to be the most effective — preparing new manuals based on the normalised/elaborated terminological systems. It was found that usage of this form of introducing term systems, though not explicitly restrictive, has even more compulsive character than standards, because such manuals leave

no place for other names of concepts — the future specialists absorb the ordered system of terms together with the ordered system of concepts. There are reasons to believe that the same approach should be used in preparing new official decrees and normative documents as well.

The work on **elaborating effective means of terminological editing** was started by a group of authors (Квитко, Лейчик, Кабанцев 1986). At the same time a guide was prepared by VNIIKI for organizing and carrying out terminological expertise. In our opinion the majority of the state documents, beginning with the constitution and legal codes (which essentially are collections of concepts and their definitions) should pass such expertise.

Establishing effective methods of terminology training should presuppose various types of such activities. We may differentiate at least three types of such training:
- preparing specialists in terminology theory and methods, which starts with special courses for linguists and all interested in participating in terminological work and is followed by preparing PhD and Dr.Sc. dissertations;
- courses of introduction in speciality based on presenting subject as a system of concepts and terms. There is already some experience and manuals of this type in Russia (see Помпеев 1976);
- familiarising courses for linguists (first of all translators) as part of LSP. Such courses were organised in the USSR in the 1970s by the Institute for Advanced Training of Information Specialists (ИПКИР);
- basic courses of terminological techniques for specialists engaged in terminological work (in many cases increases in terms of work and low-quality projects are the results of absence of terminological competence of executors).

Investigating various semiotic denotations of concepts presupposes research in general and applied semiotics (Гринев 2000; Гринев-Гриневич, Сорокина 2012) as well as analysis in the area of intersection of semiotics and terminology science (Grinev 1997; Picht 2009, 2011).

Investigating the role of terminologies in cognition should be founded on taking account of the fact that cognition is the mental process of acquiring knowledge and understanding through thought, experience, and the senses that starts with emergence of human species and is peculiar

to human beings. Defining cognition as a process determines the need for diachronic approach in its analysis. Terminological diachronic studies that resulted in forming, first (in 2000) of historical terminology science and then in 2004 — of anthropolinguistics revealed that, alongside with the stage development of reasoning there is the stage development of language perception and attitudes towards language, beginning with ignorance of the existence of language in early Cro-Magnon man, then ascription to language magical powers in primitive reasoning of pre-scientific epoch and primitive cultures, then descriptive approach to cope with the drastic growth of vocabulary in proto-scientific period and attempts at language perfection and elimination of the most evident drawbacks in special vocabularies. The next, intervening period affords an opportunity to turn to the conscious, meticulous, planned regulation of the improvable part of language — namely special vocabulary. This should be based on a number of principles.

Elaborating main principles of organisation of national terminological activities and terminology planning becomes a must for minor languages in the era of globalisation. The Russian efforts in this direction in 1970s–1990s resulted in a number of activities:

- estimation of the main directions and coverage of theoretical research, which was conducted in the 1980s–1990s and resulted in survey of dissertations (Grinev 1993), bibliography of terminological publications (Татаринов 1998) and bibliography of successfully defended dissertations of terminological character (Гринев-Гринев-вич et al. 2006);
- bibliographies of the acting terminological standards, prepared in the 1980s–1990s at VNIIKI;
- bank of standardised terminology (ROSTERM) at VNIIKI containing now more that 140,000 terminological entries;
- glossaries of the Russian terminology of terminology science (Гринев 1998; Татаринов 2006);
- introductory manuals in terminology science (Гринев 1993; Гринев-Гриневич 2008) and terminography (Гринев 1995; Гринев-Гриневич 2009) based on preliminary systematised concepts and terminology.

There are reasons to believe that the similar directions of activities (on a smaller scale), supplemented by conscious planning of national

terminology ordering, management and advancement mentioned in (Griniewicz 2010) should be useful for minor languages. If we take for example Lithuania, terminology policy should be determined on the basis of estimating the state of the present terminology, namely:

- organising a base of the existing terminological dictionaries;
- what has already been done in terminological research — collecting terminological publications and assessing the existing problems;
- collecting standardised national terms in the form of terminological data bank;
- analysis of tendencies in forming of national terminologies based on historical studies and recent development;
- analysing historical tendencies in borrowing. In his impressive survey of the past of Lithuanian language Jonas Klimavičius commented on the bad influence of forced bilingualism (with Polish, Russian and English) in the history of Lithuania (Klimavičius 2008). Now Lithuania as an independent country may compare experiences of interaction with various languages and find out what national forms persisted and survived in competition with foreign lexical units, paying attention not only to negative but also to positive aspects of such interaction;
- estimating needs in ordering/developing terminology in various branches of knowledge.

Information collected may serve as basis for language policy actions, some of which are mentioned in *Guidelines for Terminology Policies* prepared by Infoterm (GTP), and which should include:

- preparing or choosing a suitable manual on terminology and terminography, organising courses on terminology science and LSP in higher education institutions;
- preparing instructions for specialists participating in terminological work;
- organising courses for specialists participating in terminological work;
- systematisation of Lithuanian vocabulary and preparing systematic dictionary, serving as the nucleus of national terminology;
- comparing various types of term-forming and designing patterns of special nomination for various branches of knowledge;

- assessing possibilities of using the existing admirable information on dialectal lexical material in naming new concepts;
- defining borrowing policy — establishing preferable types of borrowing (material borrowings, loan translations, mixed borrowings) for various branches of knowledge;
- working out principles of constructing technical nomens;
- investigating possibilities of controlling forms of pragmonyms.

These activities may be viewed as part of a complex programme of civilised language expansion, based on such an outstanding feature of Lithuanian language as its being one of the oldest living Indo-European languages retaining many archaic linguistic features also characteristic of Latin and Sanskrit. Perhaps appeal for funds to organs of the European Union responsible for cultural heritage would be proper. Other measures of promotion of Lithuanian may be:
- addressing all European universities where there are courses of general and comparative-historical linguistics with suggestions of organising courses in Lithuanian;
- preferential terms of employment in the country for native speakers of other languages who study and know Lithuanian;
- courses of Lithuanian free of charge;
- preparing teachers of Lithuanian for various countries.

CONCLUSION

Survey of both theoretical and practical terminological activities in the former USSR and Russia for the last 50 years shows that intensive development of terminology theory in the 1980s–1990s resulted in formulating principles of various directions of terminology work that took shape at that time. Some of these principles may be successfully applied in terminology policy and planning for minor languages.

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TERMINOLOGIJOS VEIKLA: PRINCIPAI IR PERSPEKTYVOS

Straipsnyje trumpai aprašomos pagrindinės praktinės terminologijos veiklos kryptys ir principai SSRS ir Rusijoje per pastaruosius penkiasdešimt metų. Atkreipiamas dėmesys į terminologijos ir savarankiškų jos disciplinų ryšį. Gvildenamos pagrindinių sąvokų tipų tyrinėjimo, pagrindinių specialiųjų leksemų tipų nustatymo ir aprašymo, tvarkomos terminijos kompleksinės analizės, terminijos semantinio nagrinėjimo problemos, apžvelgiami svarbiausių terminų darybos būdų ir tipų, sunormintos terminijos diegimo būdų, terminologų rengimo privalumai ir trūkumai, terminologijos veiklos organizavimo nacionaliniu lygmeniu principai ir metodai. Remiantis lietuvių kalbos pavyzdžiu apžvelgiami galimi bendrieji nacionalinės terminijos plėtros skatinimo ir planavimo metodai.

ТЕРМИНОЛОГИЧЕСКАЯ ДЕЯТЕЛЬНОСТЬ: ПРИНЦИПЫ И ПЕРСПЕКТИВЫ

Даётся краткое описание основных направлений практической терминологической деятельности и ее теоретических принципов в СССР и России за последние 50 лет. Отмечается филиация терминоведения с появлением самостоятельных терминоведческих дисциплин. Рассматриваются проблемы исследования основных типов понятий, выявления и описания основных типов специальных лексем, комплексного анализа упорядочиваемых терминологий, семантического анализа терминологий, разбираются достоинства и недостатки основных способов образования терминов, моделей образования терминов, способов введения упорядоченных терминологий, подготовки терминоведов и терминологов, развитие восприятия языка человеком в процессе его эволюции, принципы и методы организации национальной терминологической деятельности. На примере литовского языка рассматриваются общие методы организации и планирования развития национальной терминологии.

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