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Bertha Toft

Special issue containing the last 9 contributions to the colloquium *Comparison of the theoretical foundations of terminology in Eastern Europe and the Western countries*, held in Surrey in August 2003 in conjunction with the 14th European Symposium on Language for Special Purposes “Communication, Culture, Knowledge”. The first 6 papers were published in Volume 14 (2003).

FOREWORD

The aims of former workshops and colloquia arranged by the IITF have primarily been to clarify theoretical positions in terminology in the Western countries. Under this heading the proceedings of the following events have been published in this journal:

‘Sign Models in Terminology and LSP’ (Vol. 8 (1997) no. 1/2)

‘New trends in Terminology teaching and Training’ (Vol. 8 (1997) no. 1/2)

‘New Approaches to Research into the Concept within Terminology’ (Vol. 10 (1999) no. 2)

‘Terminology Science at the Crossroads?’ (Vol. 12 (2001), Vol. 13 (2002))

Taking a look at the lists of participants of those events, it is striking that East European researchers have been very poorly represented. In the past, this was to a great extent due to the restrictions and other problems, especially of a financial nature, which our Eastern colleagues have had to cope with.

Fortunately, things have changed, and therefore the IITF have considered it of paramount importance to re-establish, intensify, and strengthen the contacts and the interchange of results with a very important part of our research community.

Whether we as linguists like it or not, we have to admit that the language barrier between Eastern and Western European languages has considerably hampered our contacts, interchange and co-operation, especially at a more informal level, even though institutions such as Infoterm, the IITF, the IULA, and others have made a remarkable effort to publish translations of works written in languages inaccessible to most of our Western colleagues. However, the fact that knowledge about recent developments in terminology research in Eastern Europe is still insufficient or even non-existent in Western countries can be very clearly deduced from the references quoted in monographs and articles.

In order to change this lamentable state of affairs, in October 2002 the IITF, in co-operation with our Eastern colleagues especially in Moscow, took the initiative to a first colloquium within the framework of the "2nd International Conference on Terminology in Commemoration of E. Drezen's 110th Anniversary" in Riga. The subject of the colloquium was "Intensification of Co-operation in Terminology between East and Central European Countries". This conference may be considered a forerunner of the colloquium in Surrey.

The colloquium is to be considered within the framework of the above-mentioned initiatives and events. It is therefore not surprising that the main aims of the colloquium were the following:

To offer our Eastern European colleagues the opportunity to present the results of their basic research in terminology

To contrast their research results with those from colleagues of the Western countries in order to elucidate differences as well as common basic foundations.

It is commonly agreed that any serious research work requires a solid theoretical foundation. In other words, if we want to create the basis for comprehensive and sound co-operation in terminology research, three preconditions have to be met: we must obtain knowledge about existing results, we must establish and ensure continuous knowledge transfer, and we must be prepared to share knowledge. Apart from these basic preconditions, personal contacts are indispensable. Consequently, we have to add to the above general aims the establishment of personal contacts as the real prime mover of any efficient collaboration.

Obviously the very tight timetable of the colloquium did not allow the commentators – who had only 15 minutes each – to go into detail in their oral presentations. Therefore, they have been allowed more space for their written comments in order to make them more comprehensible for those who could not attend the colloquium.

It is our hope that these proceedings will contribute to establishing a more intensive dialogue between our research communities in future.

Last, but not least, we would like to thank all colleagues for their efforts and dedication, without which such an event cannot be successfully realised.

Heribert Picht
Bertha Toft

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NOMINATIVE UNITS IN SCIENTIFIC ENGLISH

In accordance with the theme of my presentation, I will first consider the well-known idea that in addition to the communicative function, the nominative function is also of great importance in language. It leads to better understanding of how a person perceives, categorizes and conceptualizes various items of spatial, social and emotional experience. In this respect I'd like to show the relationship of names and things of the outer world which realizes the integral link existing between human cognition and communication. In professional communication nomination is coordinated by general naming processes and principles. The application of these principles will be exemplified by an extended study of nominative units in scientific English, pertaining to secondary nomination. This case of nomination brings forth different examples of figurative, extended, and special meanings. In addition to that, in scientific English the influence of borrowing, word and phrase formation, and types of motivation in lexical naming is remarked upon.

INTRODUCTION

Man is endowed with reason, with the power of individual reference to objects of reality, and with the ability to communicate. Together this makes him a human being who creates, uses, and comprehends language units, plays with words and studies them from different angles.

When a person picks out one of many things in the surrounding reality, he classifies it within the specific sphere of knowledge and social experience on the basis of the concepts to which it may refer. His gnostic activity becomes the product of the language activity expressed by specific meaningful units. In fact, the human mind and language cannot exist without each other, they both reflect the same kinds of spatial, social or emotional experience. Moreover, the relationship between names and things of reality is not a direct link, but it is engaged in a more sophisticated way, i.e. as a link via concepts of our mind, which inevitably leads to differences in people's perceptions and attitudes.

It should be emphasized that in shaping the world by means of language elements, we proceed from what we find in our world and our life-experience; we perceive, categorize and conceptualize different pieces of extra-linguistic reality and our thinking. Only after that do we name them. In language usually only some pieces of such visualized experience are named by suitable words and expressions. But human speech can cover the entire field of different things actually existing and those created by a person's imagination. Using language units of different kinds, we try to represent a fairly uniform picture of reality in its essential aspects.

All the things which have been mentioned – in the world and in the mind, on the one hand, and in language, on the other - may be contrasted to each other. For obvious reasons, these dimensions are interrelated, i.e. each stresses its own aspect in the scope of categorization, conceptualization, and naming (See figure 1).

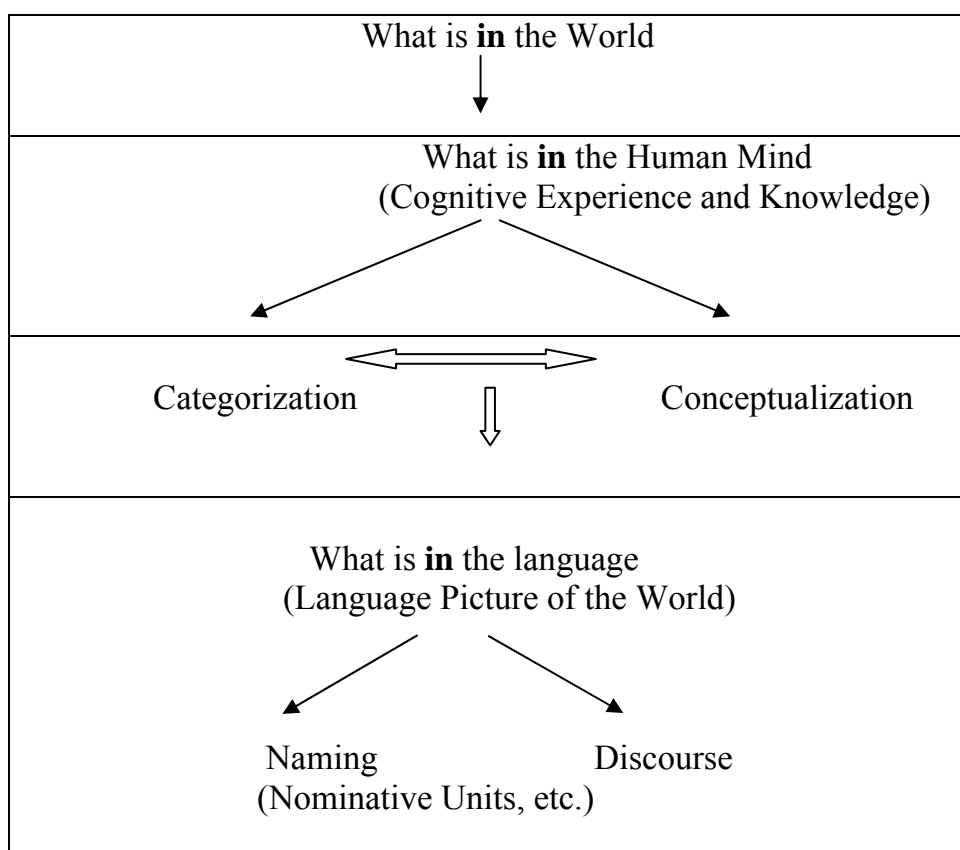


Figure 1: The connection between World and Language

Thus, each fragment reverberated from the world is named by suitable items, and it is evident that a newly created unit represents an image of complex relationships holding between the language elements themselves. I should like to introduce a most inspiring topic for linguistic study, which is not only an attempt to describe nominative units, in particular, but to reveal the process of being expressed verbally and to show the connection between mental processes and naming. This aspect is of great interest, especially in the sphere of language for specific purposes and professional communication.

The goal in question is not all that simple, since the process of naming is an integral part of human cognition and communication. Naming conceptual categories, or concepts, with economical linguistic labels is a purely human activity; animals do not name things since they need not do this, and this is what makes us different from them. The problem, as I see it, is that human naming activity represents a holistic, systematic and semiotic language interpretation of reality, the formation of a specialized outlook of the world.

NOMINATION IN LANGUAGE AND IN THE TERMINOLOGICAL SPHERE OF PROFESSIONAL COMMUNICATION

Let me turn to the definition of nomination. To help focus the issue, I wish to quote a brief passage from one of my previous papers: "nomination is usually defined as a many-sided phenomenon, which is understood as the process of giving names to different objects, phenomena and situations with the help of linguistic means, attaching a definite referent to one of the language signs" (Manerko 1994: 27). The cognitive activity of a person, his ability to classify referents of the surrounding reality becomes the product of the language activity expressed by a word or an expression.

It is essential to stress the fact that there is a special branch of the Russian linguistic school called the theory of nomination or onomasiology. The term "onomasiology" was introduced by Professor A. Zauner in 1903, and a comprehensive program of onomasiological investigations was outlined by the Prague Linguistic Circle. A little later, in the 60s of the XX century and afterwards, the contribution of a group of outstanding Russian scholars such as professors G.V. Kolshansky, B.A. Serebrennikov, A.A. Ufimtseva, E.S. Koubriakova, and others, created the possibility of applying this theory and analysis to various language phenomena.

Nowadays, onomasiology is viewed through the cognitive-functional perspective in linguistics (Koubriakova 1996) according to which all language and speech phenomena are determined by cognitive mechanisms in categorization, mental spaces, prototypicality in conceptual categories, etc. What should mainly be stressed is the fact that cognitive linguistics sees world knowledge as an indispensable foundation of semantic research, which treats linguistic data only against their contextual background (Gvishiani 2000: 123).

In communication in general, the naming function is the most fundamental one. It can be performed by a number of language units, such as free phrases (*a nice girl* – a case of propositional naming), sentences (*She is a nice girl*), superphrasal units (including one or more paragraphs of text based on the semantic unity of interrelated ideas expressed by the author, which leads to an orderly and dynamically organized set of sentences), and even texts (discursive naming). The elements mentioned cannot be called ready-made, they do not enter the lexicon because in each case they are created in discourse by phrase forming rules. These notions are usually studied in syntax, discourse analysis, and other branches of linguistics¹. They are presented in figure 2.

¹ Here I want to introduce the notion of discourse, which is usually referred to as "a continuous stretch of language larger than a sentence" in the Western linguistic tradition. Although "discourse" is often regarded as a spontaneous realization of language in which no linguistic structuring can or should be discovered, it is seems essential to adopt a broader perspective. In D. Crystal's encyclopaedia of linguistics the term is defined as "a dynamic process of expression and comprehension governing the performance of people of people within linguistic interaction" (Crystal 1985: 96). Being a dynamic phenomenon of human interaction, discourse is represented by "a certain model of mental space which can include the concealed and/or implied meaning characterized by some spatial range" (Koubriakova, Alexandrova 1997: 20).

Nomination

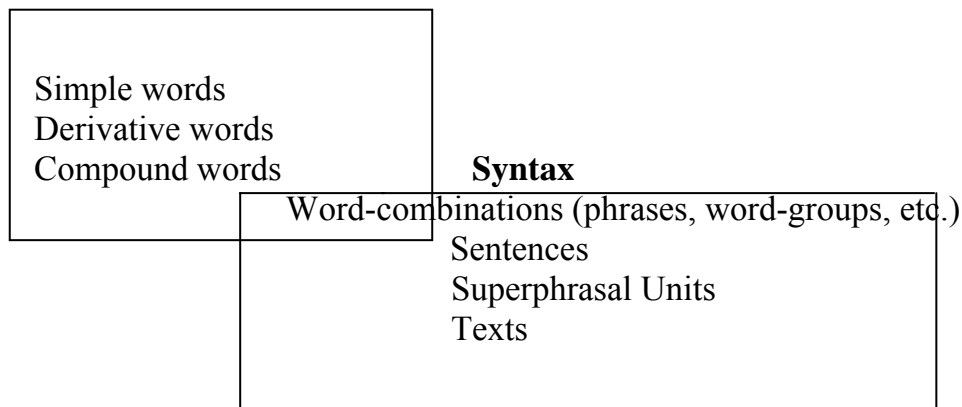


Figure 2. Nominative and syntactic units

It should be made clear that the most economic ways of naming concepts are by means of *lexical units*, *collocations*, and *set-expressions*, which function as separate words. Thus, simple, derivative and compound words, and different kinds of word combinations exhibit all possible features of nominative units (see fig. 2).

It is common knowledge that every name created is marked by the primary function for which it was produced in language and speech. This is the case of direct nomination. It is quite obvious that this function of nominative units is seldom observed in the sphere of scientific discourse. I think that a word or an expression, especially in professional communication, would rather perform the other – indirect or secondary – function. This accords with the specifications of the main principles of terminological naming, for practical purposes corresponding to general language nomination.

Not all concepts in the mind are named by conventional lexical units, but only those that are especially important for communication.

The results of categorization may not be the same in the minds of different people even if they belong to one and the same socio-cultural environment (cf. the proverb: *What is trash for one man is treasure for the other*).

Even one and the same person may categorize the same object, property or event differently owing to his perceptual understanding of figure/ground organization, attention and other factors influencing interaction, seeing that "we are constructed so as normally to be unaware of our own contribution to our experiences" (Jackendoff 1996: 27).

Behind each term there should be a clearly defined idea or concept, systematically related to the other concepts that make up the body of thought in question.

Naming is an inherent feature of the human language, closely connected with the process of communication.

These principles influence naming in the scientific domain of English. In accordance with them, the secondary nomination function in the sphere of terminology may correspond to all types of figurative, extended, or special meanings, cases of word or phrase building, and borrowing. These are the main means of representing nominative units in scientific English and Russian.

Now I'd like to turn to the proposed characterization of nominative means. It is interesting to note that many common words of professional discourse included in the bulk of the general word-stock may be met in everyday communication. This is the case with the Russian word *сеть*, which means "an appliance for catching fish". In Russian LSP, this item acquires a new meaning: "a system of relationships" (система связей).

In the English language, the same process takes place as in Russian. Thus, the word *net* defined in the dictionary as "material made of threads of rope, string, wire that are woven loosely so that there are spaces between them, allowing gas, liquid or small objects to go through" [Cambridge 1995: 949] refers to practically the same concept in the socio-cultural sphere of English. Moreover, the item chosen expresses the corresponding concept in the sphere of terminology effectively and unambiguously, so that it is generally accepted just as its equivalent – *network*. Both items (*net* and *network*) mean "a large system consisting of many similar parts that are connected together to allow movement or communication between or along the parts or between the parts and a control centre" [Cambridge 1995: 950].

I believe that the extension of meaning is one of the ways applicable to any concrete object in everyday interaction. Needless to say, the occurrence of such semantic change can be ruled out by a person's associations, his own interpretation of various phenomena of the outer world, or his ability to relate different phenomena on the basis of their similarities.

There is one more phenomenon that should be mentioned here. It is the opposite of the previous notion. Here we are dealing with the content of the concept, enriched by the special professional domain, in which we may find persistent associations with the general word-stock of the language when the term is used out of its everyday sphere. The Russian word *сеть* already described acquires a specialized meaning in a new sphere of discourse.

This may be illustrated by the following phrases, such as: *нейронная сеть* (neural net in English), *телекоммуникационная сеть* (telecommunication net), *сеть отношений* (relational net), *сеть узлов и связывающих их отношений* and many others. Only some of the Russian phrases have equivalents in English.

In the same scientific register of English we can identify a number of nominal phrases, which are as follows: *neural net(work)*, *semantic net(work)*, *conceptual-relational*

net(work), *telecommunication net(work)*, etc. (Baranov 2001: 244-245). It is obvious that such nominative units are coded by twice by the human mind: first when they are used to categorize the most essential piece of reality, and secondly when the image of the object is necessary for representing some additional features of a new concept which has to be reflected. In professional communication, representing the most intensely developing part of the vocabulary, the formation of word-groups is the most characteristic feature of any particular field of knowledge, industry, or research.

Here it is significant to mention that different terms denoting quite closely related notions are introduced by different linguistic theories. Thus, in the Russian linguistic tradition, a "word-combination" can be applied only to word-groups containing at least two notional words (e.g., *neural net, to detect the neutrino*). This term is firmly established and explained in a number of manuscripts and textbooks (see Manerko 2000). Western and American scholars hold a different point of view and frequently use the term "phrase". In their opinion it may be described as any combination of two or more words which constitute a unit (e.g., *a net, to the river*). For my purposes it is more useful to choose the term "word-combination" since the construction is clearly defined, it is the integral unit of nomination and syntax.

Word-combinations are frequently registered in various kinds of professional discourse, they are numerous and are found in every other line of the special text. To help focus the issue, I would like to quote J. Sager's opinion on this point:

"The most important components of the vast majority of Special English sentences are conceptual units expressed in nominal groups. They contain the individual items of information which make up the detailed description of a machine or process, the logical exposition of an idea or theory, the reasoned explanation of natural phenomena and the objective evaluation of experimental data. They act as the building block from which special English sentences are constructed because they possess certain inherent qualities which enable them to perform the task of communicating information effectively and efficiently" (Sager 1980: 219).

Apart from that, word-combinations usually attach a peculiar rhythm to the utterance. This idea can be illustrated by a passage from the lecture of Frederick Reines (the 1995 Nobel Prize winner in Physics) entitled "The Neutrino: from Poltergeist to Particle". In this extract, nominative structures of different kinds intertwined with other words represent certain networks of ideas serving the flow of author's cognition and the purpose of communication:

Viewed from the perspective of today's computer-controlled kiloton detectors, sodium iodide crystal palaces, giant accelerators, and general hundred person groups, our efforts to detect the neutrino appear quite modest. In the early 1950's however, our work was thought to be larger scale. The idea of using 90 photomultiplier tubes and detectors large enough to enclose a human was considered to be most unusual... It soon became clear that this new detector designed for neutrinos had unusual properties with regard to other particles as well – for instance, neutron and gamma-ray detection efficiencies knew 100 percent. We recog-

nized that detectors of this type could be used to study such diverse quantities as neutron, muon decay lifetimes, and the natural radioactivity of humans... (Reines 1995:102).

Lexical naming of concepts seems obvious and universal. It includes name derivation, semantic derivation and borrowing, which are usually created using existing linguistic means.

Name derivation is a complex phenomenon since the word is an active mediator which assists constant development of the cognitive and creative activity of a person. Lexical naming is in opposition to phrase-forming constructions. Such lexemes are usually short and easy to comprehend, which is why a great number of morphologically derived words are created in English. Even the word *network* may illustrate the most productive way of creating new lexical units in the sphere of terminology. The unit consists of two stems (*net* and *work*) forming a compound name.

The structures of compound words may differ in English: N + N (air-engine, atom-smasher, expansion-gear, adapter-booster), V + N (pull-card, stay-bolt), V + V (float-feet, kick-start), N + V (bell-push, paper-feed), V + Prep (hold-down, stop-off), Ving + N (casting-machine, blowing-machine), Abbr + N (A-bomb, H-bomber, Lo-R-dosimeter), GraphSymbol + N (A-display, O-ring). Some compound words may be formed from international roots of Greek or Latin origin (accelerograph, leucoscope, oleofractometer).

Compounding represents one of the means of word-formation. Among other productive types of word-building, we usually distinguish affixation (*smasher*, *breaker*, *to synchronize*), conversion (*transplant*), abbreviation (*radar*, *transistor*, *transceiver*), etc.

The study of such nominative units in the sphere of scientific English is valuable as they contribute to defining the conceptual categories of human experience related to special discourse. I try to analyze them from the point of view of their cognitive-onomasiological models, through their word-formation meaning.

The process of naming may be conditioned by the item adopted in the language. Let us look at the nominative unit *estate* which nowadays denotes "a large area of land in the country which is owned by a family or an organization and is often farmed" (Cambridge 1995: 469). Etymologically the word is Latin, in which language we find the corresponding noun *status* and the verb *statere*. The verb expresses the idea of being static in some place (point): "to stay, to set up, to place in the vertical position". The image of stability is also expressed by the French form *estat* ("the state or condition in general, whether material or moral, bodily or mental") from which the English word derives. In the discourse of law, status signifies the idea of property and possessions, the holdings of land and other property, tenements left at a person's death (Webster's 1989: 527). So the word *estate* singles out the jurisdictional status of a person in regard to landed property and objects with specific reference to the assets of a deceased or bankrupt person. All this exists only in the framework of the historical-judicial norms of a particular society (Tumanova 2003: 144–146), which means that it is difficult to find an equivalent lexeme in Russian.

All this is in evident contrast to the process of semantic derivation. Various societies are characterized by different social norms, values, and cultural dominants. The national originality of the main chosen features in the secondary function of a language unit may be illustrated by means of English lexical units which are examples of similarity between the name form or function. The process may be illustrated by the word *bulb* (*light bulb*, which is etymologically associated with a specific form found in onions, lilies, or hyacinths (луковица). In Websters' Dictionary we find the following definition: "a subterranean leaf bud, consisting of imbricated scales of concentric coats of leaves on a short stem base encircling one or more buds capable of developing into new plants, emitting roots from its base, and producing a stem from its stem" (Websters 1989: 203). In English the name derives from Latin *bulbus*, i.e. "a bulbous root". So the object is qualified according to its similarity with other images, which is one of the means of creating new units in scientific English. (At the same time the Russian word-combination *электрическая лампочка* shows no correspondence with the form of the object but is associated with the English item *lamp*).

As a final observation, I would like to add that the structure of naming depends upon several factors:

First, the adequate transmission of the most relevant information about the object, its properties and its relations to other things and phenomena in the outer world,

Secondly, the subjective and objective types of human perception, i.e. true-to-life reflection in consciousness pertains to a person's common and specific knowledge of a nominator,

Thirdly, the choice of suitable language form depends on the situation as well as on the type of register and discourse serving the purpose of communication. In professional communication, nomination is coordinated by general naming processes and principles.

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FRAMEWORK FOR LSP COMMUNICATION - SPECIAL FOCUS ON NOMINATION STRATEGIES

INTRODUCTION

In my contribution I am going to contrast Professor Manerko's interesting ideas of Nominative Units in Scientific English, partly with philosophical and theoretical scientific, partly with LSP and terminological considerations. In my comments I proceed from the principles set for LSP communication.

I will start with a philosophical question. At the outset of her text, Professor Manerko alleges that "[...] the human mind and language can't exist without each other [...]". This statement reminds one of philosophical discussions of a concept as a linguistic aptitude which one can find in many Western philosophers. Wittgenstein for instance connects the formation of concepts with the formation of words when he says that one obtains a concept by obtaining the relevant linguistic competence, i.e. by being able to use words as the rules of the linguistic community presupposes (Wedberg 1985: 327 ff.).

The main problem of considering concepts as linguistic ability is, however, that this view presupposes that one has to know a linguistic expression before one can be considered to have a concept. Even if an expression in practice is often prior to a concept, this is not always the case. Especially in the various fields of expert knowledge, concepts tend to exist long before experts think of a suitable term for / definition of the phenomenon. This fact Professor Manerko has observed when she says that "... we perceive, categorize and conceptualize different pieces of the extra-linguistic reality and our thinking. Only after that we name them." The relation between concept and language can thus to all appearances not be seen as static but would seem to be a question of a more complicated process. This process can be compared with the indirect relation which, according to the Sapir-Whorf hypothesis, obtains between language and culture (see Lucy 1994; Laurén 1995). The relation between the world, the formation of concepts and the formation of terms Professor Manerko illustrates by means of a model which comprises three main aspects. The contents of this model I will comment on in more detail at the end of my comment after I have discussed characteristic features and strategies of designation within LSP communication.

Designations in LSP

The language and texts within LSP framework are marked by certain characteristic features which are due to the fact that special languages are tools that are guided by certain rules.

OPTIMAL LSP

In general it can be said that optimal LSP is unambiguous, exact and economical (Hoffmann 1984: 31; Bungarten 1981: 41; Koskela 1996: 205; 2003: 62). **Unambiguity** can in terminological contexts first of all be interpreted as an aspiration for monosemy to the extent this is possible. Since even special languages are open systems, polysemy and synonymy can never be completely avoided (see Nissilä & Pilke 2003). In the second place unambiguity means that LSP communication is free from subjective values. This criterion is, in my opinion, one of the most essential when one compares for instance designation strategies in general language and LSP communication. In Professor Manerko's presentation, subjectivity is included among the criteria which are said to affect the scientific designation processes. In LSP communication there is not much room for individual subjective valuation because communication is guided by collective decision-making. In this respect there thus seems to be a certain difference of opinion in her and my way of thinking.

The criterion of **exactness** is connected with LSP describing the world as accurately as possible from a certain LSP point of view. Different special fields structure the world in different ways and therefore for instance a fireman and an architect see different aspects in the concept of 'house'. Even on the level of texts it is the special field and its needs that decide how the world is presented.

In an LSP context it is important to be able to refer to different phenomena and the relations between them briefly and clearly. The **economical** aspect of LSP means among other things that one has access to terms that can be defined as *units representing concepts which belong to a conceptual system within a subject field* (see Laurén 1993: 97). In order to be able to understand terms, we must have background facts since the terms get their meaning against the background of their origin in a theory. Economy in an LSP context also depends on certain specific syntactic and morphological features characteristic of the language.

In her presentation Professor Manerko deals with nominalizations which according to Sager (1980: 219) convey a great deal of the important information in LSP sentences. The fact that LSP texts in general make use of nominalizations instead of verbs is connected with the scientific way of thinking and expressing oneself (Benes 1981: 194; see also Niemikorpi 1996: 94–96). Hoffmann (1985: 136–140) says for example that substantivized expressions are experienced as more concrete and therefore they are to be preferred since LSP texts are aiming at matter-of-factness and strive to be as precise as possible (see also Varantola 1984: 29). Nominalizations can also be considered to be concrete in the sense that they make the phenomenon dealt with more palpable (static) and easier to handle in different syntactic roles (as subject, object or attribute). According to Fairclough (2001: 103) nominalizations are reduced processes. The reduction implies that tense, mood and often even agent and patient are missing in the sentence. The nominalizations contribute to compressing information and making the level of abstraction high, which are thought to be characteristic of LSP texts. (Koskela & Puuronen 1995; Beier 1980: 61 f.; Nordman 1986: 55, 57; Roald 2000.)

The choice between nominalizations and verbs can also be supposed to reflect the differentiation that has occurred within the technical subject fields with regard to language. The more established a technoelect becomes, the greater importance its written technical language will generally obtain. The increasing need to communicate with a wider and wider circle both at national and international level presupposes that the written terminology meets the demands for exactness.

Nominalizations are above all needed in LSP texts, but verbs should not be ignored either, since the term in substantival form loses some of its ability to express the dynamic aspect, that something is done and that something occurs. Furthermore, the use of nominalizations implies a risk (even if small) that the expression can possibly be confused with expressions of static concepts. The term *painting* can for instance refer to a concept of action (surface treatment of material with colour) as well as to a static concept (artistic picture). (See Picht 1989, 1990; Pilke 2000).

CHOOSING DESIGNATIONS

It is no easy task to find out how and why certain linguistic expressions become standard designations. Not even profound socio-linguistic studies can provide conclusive answers to these questions. One possibility of approaching the problems is to see the expression metaphorically as a marketable product. The factors influencing the “marketing” are 1) the qualities of the product, 2) its marketing and 3) the conditions of the market (Huhtala 1989: 128).

Of the factors that are mentioned above, the qualities of the product are most intimately connected with the criteria or principles that belong to a good term. A good term is in the terminological literature associated with the following attributes: short, distinct from other terms, fits into the conceptual system, describes the concept well, is productive and native (see e.g. SFS 50–1989). Here one must, however, remember that these criteria are a theoretical ideal and can practically never be fully realized. If one chooses to maintain one principle (e.g. brevity) one will usually have to reduce another (e.g. transparency).

Marketing of terms is important in LSP contexts as well. If a designation does not achieve a broad enough use in the professional community it cannot be regarded as an established term. In interprofessional communication new terms spread both through written documents (theses, articles, technical manuals) and oral sources (conferences, meetings). Efficient channels are also teaching within the field and mass media dealing with a new phenomenon intensively for a longish period (Pasanen 2003). Marketing can also be thought to include the interaction that emerges from Professor Manerko’s presentation, namely that between general language and LSP. It is relatively usual for words to pass over from general language to LSP and the other way round. When the flow is from general language to LSP, a radical change most often takes place on the conceptual level (e.g. *mouse* in ADP). In this way one makes the expression represent a specific terminological concept with a definite intension.

Certain designations are consumed during a definite period. In a pilot study I have been able to establish that the prefix *täsmä-* (*precision-*) in Finnish has for the last few years had a social reservation. *Täsmäaseet* (*weapon of precision*) makes warfare sound more acceptable. When the country has massive unemployment, it is legitimate to speak about *täsmäkoulutus* (**precision education*). In the same way one may not react equally strongly against reduced service if one speaks about *täsmäsiivous* (**precision cleaning*), which sounds modern and effective. (Pilke 2002)

AUTONOMOUS FIELDS OF SCIENCE

At the end of her presentation Professor Marnerko takes up the term *estate*, which belongs to the juridical field. After an etymological discussion about the origin of the expression, it is stated that it is difficult to find an equivalent in the Russian language because the word belongs to "[...] the framework of historical–judicial norms of a particular society [...]". In this context I will take up a few theoretical scientific ideas referring to the autonomy and peculiarity of different sciences.

Pörn (1985) states that every autonomous science has a characteristic theoretical perspective, which means that in science one works with definite assumptions / prerequisites. The nature of the research objects (e.g. nuclear particles in physics or human beings in psychology) determines the so-called *ontological assumptions* as to what entities can occur on the basic level of the science. The assumptions of what kinds of attribute the entities take (mass, wills and intentions, barter value in the marketplace etc.) are, for their part, *categorical assumptions*. Furthermore, assumptions concerning methods of theory formation and concerning the type of explanations one expects the theory to provide in the theoretical perspective are included as well. Even a fixation of prerequisites for the structure and organization of the concept system and identification and an explanation of data with regard to the chosen perspective distinguish sciences from each other. The cognitive human processes within different specialist fields derive from the theoretical perspective characteristic of the field.

Heisenberg (1990) presents interesting thoughts of what characterizes the various fields of science and how they are related to each other. On the basis of Heisenberg, Picht (1996: 42) has suggested a model which illustrates a scale moving between two extremes: mechanism and religion. Even if this static model is a drastic simplification of multidimensional reality, it can be used as a general basis when one wants to study on the one hand empirical–analytical sciences and on the other hand historical–hermeneutic sciences. The different types of sciences have their own norms and foci of knowledge. The empirical–analytical sciences (above all the natural sciences) represent a nomothetic type of knowledge and makes predictions about reality on the basis of hypothetical-deductive methods of working. The historical–hermeneutic sciences work inductively and represent a practical interest in knowledge which presupposes a common understanding of for example a situation (Becher 1989: 12–17; Svensson 1988: 19 ff.; Laurén 1993: 64 ff.)

According to Haaparanta and Niiniluoto (1995: 75) the natural sciences have as their task to explain phenomena on the basis of universal laws, while cultural sciences concentrate on understanding and describing individual events, persons, phases in history or cultures. In the nomothetical sciences generalizations can be made, since the objects of research are not unique. In the idiographical sciences, on the other hand, it is a question of unique research objects, which make experimental repetitions impossible (Ibid.)

Budin (1994) says that juridical concepts are often distinct from concepts in other scientific domains as a result of unusual classification criteria (for instance that animals are classified as moving objects), which are meaningful only within a definite legal system. The differences which occur in the theoretical perspective of scientific fields and in the epistemic prioritisations of scientific communities influence how concepts are arranged and what principles determine the designations of concepts (cf. for instance Karihalme 1999: 30–37).

NAMING PROCESSES WITHIN LSP FRAMEWORK

Below I will make an attempt to sum up the criteria and aspects that are relevant to LSP communication in Professor Manerko's model of *The connection between the World and Language*.

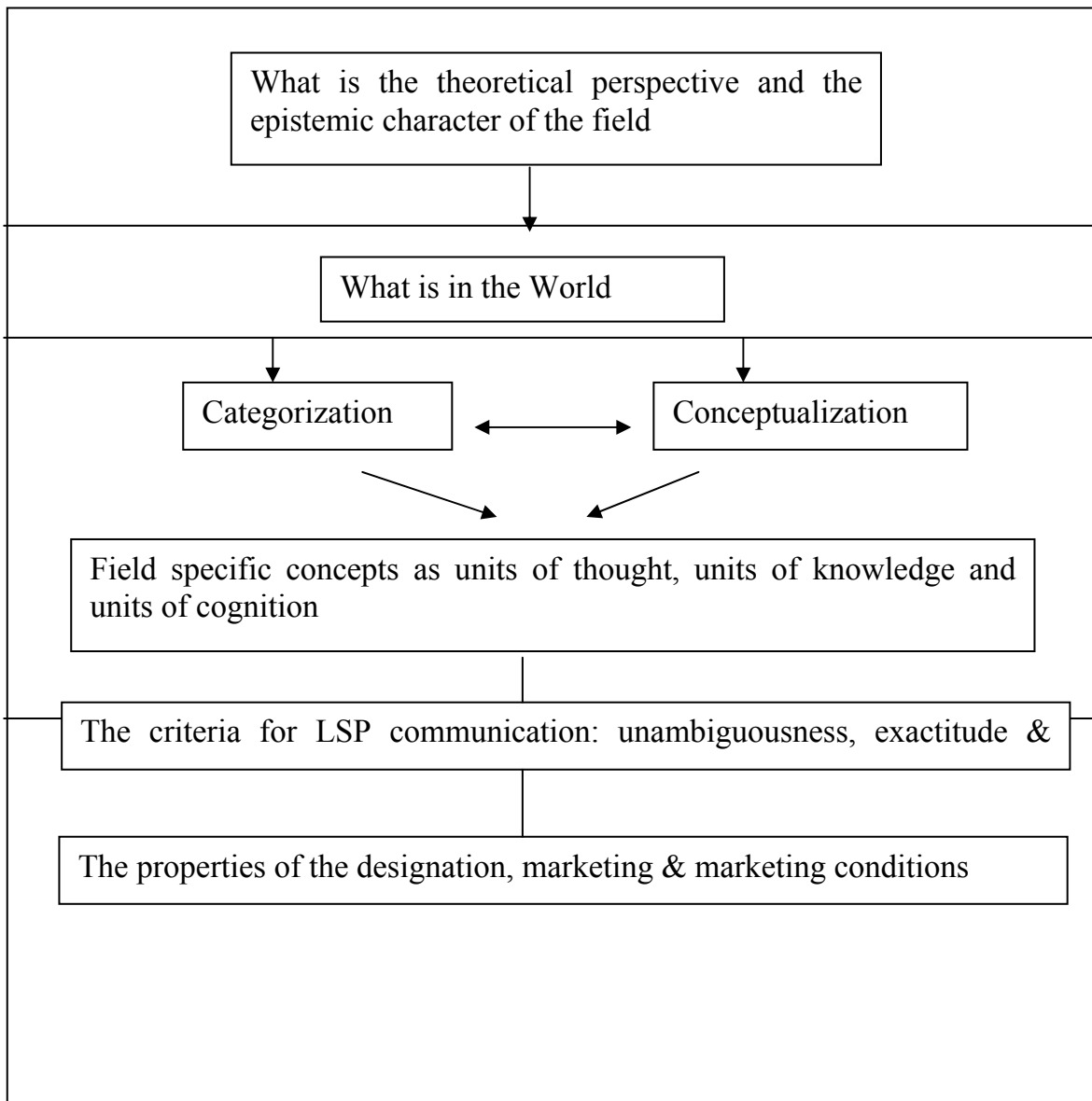


Figure 1. Framework for naming process in LSP communication.

In the revised relatively simple figure I proceed from the fact that the theoretical perspectives and epistemic priorities of scientific fields influence first of all how the surrounding world is structured and conceptualized to specific units, that is, specialist concepts.

A specialist concept belongs to the class of multifunctional phenomena which are at the same time units of thought, units of knowledge, and units of cognition. A specialist concept is always in the first place a mental quantity which we use for our specialized mental activity. At the same time a specialist concept is a unit of knowledge which comprises the collective and structuralized scientific knowledge at a particular point of time. The character of scientific knowledge implies that a specialist concept is also a tool, a cognitive unit, in the ongoing process that creates new knowledge. (Cf. Picht 1992: 26 ff.; Laurén, Myking & Picht 1997: 119 ff.; Pilke 2002: 10)

LSP communication is for its part influenced by 1) the specialist field as such, 2) the general criteria which concern specific communication, i.e. unambiguousness, exactness and economy and 3) the factors which affect the acceptability of designations, that is qualities, marketing and the condition of the market.

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Frieda Steurs

NOMINATIVE UNITS IN SCIENTIFIC ENGLISH; THE COINING OF TERMS AND THE RELATIONSHIP BETWEEN GENERAL AND SCIENTIFIC VOCABULARY.

How reality is perceived, categorised and conceptualised is reflected very clearly in communication through language. In professional communication, the naming of concepts is crucial. Terminology is essential in the organisation, conceptualisation and subcategorisation of a professional domain.

In the paper presented by L.A.Manerko, the process of naming is discussed as an integral part of human cognition and communication. The application of the principles of term creation and naming is discussed looking at the nominative units in scientific English.

The theory of onomasiology as introduced by the Russian linguistic school (Zauner 1903) helps us acquire better insights into the cognitive mechanisms in categorisation and mental spaces. The author of this paper focuses on the behaviour of scientific English with respect to borrowing, word and phrase-formation, and types of motivation in lexical naming.

I would like to look at the process of term creation from a different perspective and to look at the relation between the general vocabulary of a language (LGP) and the specialised vocabularies that are created for particular subdomains (LSP).

Secondly, what is interesting in this field is to compare and study the relation between naming and the creation of nominative units in **different languages**, and to compare the productive mechanisms in the different languages.

How do new nominative concepts get their linguistic symbol, functioning in a network of complex relations? Many languages borrow and depend upon the terms created in scientific and technical English. How do these languages behave, and how do they cope with the processes of borrowing, neologisms etc.? The study of how e.g. the Russian language (or the Slavic languages in general) behaves in the process of naming, compared to e.g. my own language, Dutch, or the Germanic languages in general, could be quite interesting. The idea of a more elaborate and in-depth comparative study is worth pursuing.

I would like to elaborate briefly upon 2 aspects related to the topic of this paper:

the main principles of terminological naming or terminology creation compared to general language nominations; the tension and relation between LSP and LGP

the way a particular language, e.g. Dutch, handles the naming of new concepts and creates a terminology infrastructure

Term formation, or the process of naming the concepts defined in a particular subdomain, is a complex process. It is interesting to compare the actual behaviour of the LSP terminology vs. the LGP vocabulary. LSP (language for specific purposes) can be seen as a subset, and a complementary set, of LGP (language for general purposes).

Comparing the collections of terminology of a particular domain and the general vocabulary, we see different types of influence: mutual change, shifts, and borrowing. The vocabularies of the different subdomains and the general vocabulary are in constant evolution.

We can see a shift in technicality of terminology, a shift in use. Specialised terminology can shift gradually to a non-specialised level of communication, e.g. in the field of telecommunication or information technology. Terms such as *roaming*, *WAP*, *SMS*, *MMS* etc. were considered high-tech and very specialised when they were first introduced. Owing to the fact that these tools are now widespread in use and belong to our everyday life, these terms will be included in the general dictionaries and will gain the status of general vocabulary.

It is very interesting to study the word formation principles in LSP : how do new terms come into existence?

Term formation does not take place in isolation: it always functions in a particular group, in a particular professional setting.

There are different modes of term formation, and starting from the paper by L.A.Manerko, it would be highly commendable to initiate new research into this phenomenon in Russian and other Slavic languages. Some aspects that need to be looked into when trying to understand the process of term formation are:

the relation to the subject field: the inherent knowledge of a particular subdomain can suggest particular patterns for coining new terms

some diachronic factors: Latin and Greek roots occur in a lot of technical and scientific terminology; it helps to create transparency. I may refer here to a new project for the Dutch language, where a dictionary of neo-classical elements is being compiled by the Dutch Institute for Lexicography (INL). The data collection looks at those affixes and stems of classical origin that are still productive when coining new terms. E.g. ‘bio-’, ‘mega-’, etc. Many different techniques can be used to coin new terms ; e.g.

Productive splinters

- Watergate, Irangate, Pasquagate, ...
- Brunch: breakfast and lunch
- Hotel, motel, airtel, ...

Change in meaning / analogy

- Terminal:

- a) terminating point, part, or place
- b) a station, usually at the end of a railway line
- c) computer system

Translation / equivalences / completely new terms

A couple of examples using different languages compared to English may show clearly that different solutions can be found for creat new terms: some languages will prefer a close borrowing from English ; others will be more creative.

English vs Dutch vs Afrikaans

- Computer – computer – rekenaar
- Milkshake – milkshake – melkschommel

English vs Dutch (NL) vs Dutch (Flanders)

- PINcode – pinnen – elektronisch betalen
- Chip – chippen/chipknip – Proton
- E-mail – e-mail – e-post (French : courriel)

When trying to understand the process of naming and term formation, we have to keep in mind the relation and the value of terms and concepts. Terms are specialised designations which designate clearly definable concrete or abstract objects, e.g.

- camshaft, criminal proceedings, personal computer, LAN, etc.

Concepts comprise the more or less specific characteristics of particular individual objects or of a whole class of objects. Definition and delimitation of the concept and determination of the concept needs to be done in the system of concepts (semantic network).

It could be recommended to look at the patterns of term formation in Russian and compare this to other languages. An aspect that needs to be taken into account is the balance between the use of existing terms and resources, the use and modification of existing terms, and the creation of completely new entities (neologisms).

When studying the process of term formation, an important aspect is the level of communication and the actors involved:

We can distinguish between different types of communicators

- From scientist to scientist
- From scientist to technical assistants
- From scientist to technical production staff
- From scientific & technical staff to skilled workers

- From production staff to sales
- From sales to consumers

An example may serve to demonstrate the richness of the language, the shifts in semantic network, the use of subdomains, and the register of the language:

network noun [C]

a large system consisting of many similar parts that are connected together to allow movement or communication between or along the parts or between the parts and a control centre:

a television network

a road/rail network

a computer network

*Massive investment is needed to modernise the country's **telephone** network.*

*We could reduce our costs by developing a more efficient **distribution** network.*

a network of spies/a spy network

network verb

1 [T] to connect computers together so that they can share information:

*Our computer system consists of about twenty personal computers networked **to** a powerful file-server.*

2 [I] to meet people who might be useful to know, especially in your job:

I don't really enjoy these conferences, but they're a good opportunity to do some networking.

neural network noun [C]

a computer system or a type of computer program that is designed to copy the way in which the human brain operates:

Neural networks can learn solutions to difficult problems.

support network noun [C]

a group of people who provide emotional and practical help to someone in serious difficulty:

It's very hard for battered women to rebuild their lives without a good support network.

the old-boy network UK

the way in which men who have been to the same expensive school or university help each other to find good jobs:

The old-boy network still operates in some City banks

The different meanings of 'network', as listed in a general dictionary, have to be identified in their proper subdomain, in order to be assigned a unique value.

• **network**

n. & v. ●n. **1.** an arrangement of intersecting horizontal and vertical lines, like the structure of a net. **2.** a complex system of railways, roads, canals, etc. **3.** a group of people who exchange information, contacts, and experience for professional or social purposes. **4.** a chain of interconnected computers, machines, or operations. **5.** a system of connected electrical conductors. **6.** a group of broadcasting stations connected for a simultaneous broadcast of a programme. ●v. **1.** tr. broadcast on a network. **2.** intr. establish a network. **3.** tr. link (machines, esp. computers) to operate interactively. **4.** intr. be a member of a network (see sense **3.** of n.).

I should recommend considering the study of the vocabulary and terminology related to a particular subdomain for different languages compared to English (e.g. Russian and Dutch).

It would be worth trying to establish a conceptual frame in which the different concepts are clearly defined and related to each other, and then to look into the process of naming. How do the different terms behave in the respective languages?

As a second aspect related to this paper, I would like to explain how terminology and terminology creation is followed, studied and supported by the Dutch terminologists. Dutch is a Germanic language, closely related to English. New terms have to be coined, very often in comparison or relation to English terminology.

The Dutch Terminology Association (NL-TERM) supports different initiatives to keep track of the occurrence of new terms in the Dutch language. One of these is *Neoterm*, the Neologisms watch. It is a detailed and very rich database, where new occurrences of terms can be listed. Very often new Dutch equivalents for English terms are created, but some only survive in one part of the Dutch speaking area, e.g. in Flanders; some only survive in the Northern part, the Netherlands.

The database includes all kinds of information on the status and occurrence of the newly coined term. Will they continue to exist? Will they be included in the normal vocabulary? What is the relation between LSP and LGP? Will the term gradually be accepted in the general language?

From these data, interesting extrapolations can be made to get a better insight into the general mechanisms of term creation and the tension between LSP and LGP. An e-mail forum will soon link the database to the general public, so that new terms can be introduced by the Dutch language users. At the same time, new initiatives are being taken in the Dutch language area to come to a better understanding of the use of terminology and the evolution of language.

Another, not less important, point is the constant surveillance carried out in order to secure the use of proper Dutch terms and to avoid blind copying and borrowing from English into our language. The Dutch language Union (Nederlandse Taalunie) plays an active role in the terminology policy of our language.

The Coterm commission (chair: F.Steurs) initiated several projects in relation to terminology. One of them is 'VIPTERM', a website containing all necessary information on terminology and terminological activities, bibliographic references and references to standards, etc. VIPTERM is being developed right now, and will be open to the general public in the summer of 2004. The project runs in close cooperation with the DTP-Portal, a German initiative, and will also exchange information with all other international initiatives. Cooperation also takes place with the INL, the Dutch institute for lexicography (www.nlterm.org.)

TERMINOLOGIE IN DER PRAXIS DER UKRAINE

Die Grundlagen für die Methoden der Terminologearbeit bilden die terminologischen und terminographischen Grundsätze, die auf Erkenntnissen der Terminologiewissenschaft beruhen (siehe, z.B., 8). Die praktische Terminologiewissenschaft – Terminographie – erforscht die Fragen der Schöpfung von angewandten Produkten der terminologischen Tätigkeit, welchen in erster Linie die lexikographische Tätigkeit (Wörterbücher), die Formung von terminologischen Datenbanken und terminologischen Kartotheken, Unifizierung von Fachwörtern und Standardisierung von Terminologien, die Fachwortübersetzung, die Arbeit eines Redakteurs an den Fachwörtern, terminologische Dokumentenexpertise, terminologische Organisationstätigkeit von Komitees, Zentren und Verbänden angehören.

Zu den Methoden der Terminographie zählen wir linguistische Beschreibung, Modellierung, Komponenten- und Definitionsanalyse, Methoden der Identifizierung, Art-Gattungs- und Thesaurusmethoden, Nestanalyse, statistische und strukturelle Methoden (automatische Bearbeitung eines Textes, die Formung von terminologischen Datenbanken, die Bedienung von Informationsnachforschungssystemen, Maschinenübersetzung).

Zu den Hauptproblemen, die vor sich die heutige Terminographie stellt, gehören:

1. die Ausarbeitung von methodologischen Prinzipien für die Schaffung von terminologischen Wörterbüchern;
2. die Bildung von einem Invariantenprojekt eines Wörterbuches für die Beschreibung von verschiedenen gesellschaftlichen Schichten der Lexik;
3. die Schaffung einer wissenschaftlich begründeten Typologie von Fachbegriffen;
4. die Bestimmung der Hauptparameter von terminologischen Wörterbüchern;
5. die Ausarbeitung von prinzipiellen Erfordernissen an die terminologischen Untersuchungen;
6. die Erforschung der Makro- und Mikrostruktur eines Wörterbuches;
7. die Analyse von Prinzipien der Auswahl der Lexik für ein terminologisches Wörterbuch;
8. die Ausarbeitung von Hauptmethoden für die Beschreibung von Termini;
9. die Einführung der Computerisierung für die Schaffung von terminologischen Wörterbüchern (siehe auch 3.36).

Zu diesen rein terminologischen Problemen fügt man das Problem der Vereinbarung von Terminologien auf der interdisziplinären, zwischenstaatlichen und zwischenregionalen Ebene hinzu. Wenn man die Entwicklungsetappen in der Terminographie unterscheiden will, so können wir die folgende Tatsache behaupten: die Terminologie von bestimmten

Wissenschaften ist schon zustande gekommen und in entsprechenden Wörterbüchern fixiert, das Fachwortsystem von anderen Wissensrichtungen verweilt noch auf einer Entwicklungsstufe. Dasselbe könnte man auch über die Terminologie im Maßstab der Welt sagen. Die entwickelten Länder haben die Etappe der Terminologieformung schon hinter sich und beruhen auf der Stufe der internationalen Vereinbarung, während in anderen Ländern die Fachwortkundler noch an der Bildung von nationalen Terminologien arbeiten.

Die entwickelten Länder leisten eine wesentliche Hilfe für jene Länder, die noch im Prozeß der Formung ihrer eigenen Terminologie auf der Basis ihrer nationalen Sprache verbleiben. Eine besondere Achtung genießt u.a. die Tätigkeit des 1971 mit Hilfe der UNESCO gegründeten Internationalen Informationszentrums für Terminologie (Infoterm) in Wien, welches die terminologische Tätigkeit weltweit koordiniert (9). Außerdem ist von Infoterm „Die Internationale Bibliothek von terminologischen Beiträgen und Dissertationen“ gegründet.

In einer besonderen Lage befindet sich die heutige ukrainische Terminologie, welche wieder fast von Anfang an geformt wird, obwohl sie schon eine reiche eigene Erfahrung der Terminologieschöpfung besitzt und ihren Anfang in der 2. Hälfte des 19. Jhds nahm. Eine aktive Arbeit an der Herausgabe von wissenschaftlichen terminologischen Wörterbüchern fiel in den 20-er Jahren des 20. Jhds, obwohl fast alle ihre Autoren in den 30-er Jahren repressiert wurden und die Nutzung der Wörterbücher verboten war. Der ukrainischen Sprache wurde das Recht entzogen, ihre eigene Terminologie zu besitzen. Der Prozeß einer vollständigen Russifizierung von Terminologiesystemen hat bis zur Entstehung des unabhängigen Staates der Ukraine gedauert. Diese Situation haben bis zu dieser Zeit weder einzelne Wörterbücher (z.B. „Das Russisch-Ukrainische Technische Wörterbuch“ – 80 Tausend Stichwörter oder „Russisch-Ukrainisches landwirtschaftliches Wörterbuch“ – 40000 Stichwörter), noch die Tätigkeit des Ausschusses für Wörterbücher, welcher 1978 ins Komitee für wissenschaftliche Terminologie beim Präsidium der Akademie der Wissenschaften der USSR verwandelt wurde, gerettet.

Seit der Konstituierung der ukrainischen Sprache als Staatssprache ist das Problem ihrer Ausnutzung in allen Bereichen der Wissenschaft und der Technik entstanden. Bis zu dieser Zeit dominierte in der ehemaligen Sowjetunion auf allen Ebenen Russisch, in welcher fast alle Untersuchungen, Beiträge, Lehrbücher u.s.w. veröffentlicht wurden. Vor uns steht die Aufgabe, den Ukrainern selbst ein Verständnis beizubringen, daß Ukrainisch nicht nur im Bereich des Alltagslebens, sondern auch in der Wissenschaft erfolgreich funktionieren kann. Darunter soll man die Schwierigkeiten eines objektiven, wie auch rein psychologischen Charakters überwinden:

- a) die Wissenschaftler sind an die Nutzung der russischen Sprache angewöhnt und dementsprechend an die russische Terminologie;
- b) die Lehreinrichtungen verfügten hauptsächlich über russische Lehrbücher, wissenschaftliche Literatur und Lehrmittel;

- c) die vorhandenen russisch-ukrainischen Wörterbücher und ukrainische Lehrbücher leiden unter einer vollen Lehnübersetzung der Fachwörter aus dem Russischen, ohne dabei die Normen der ukrainischen Sprache zu berücksichtigen;
- d) viele Fachwörter besitzen keine ukrainischen Entsprechungen und die Fachleute benutzen sie nach ihrer eigenen Vorstellung;
- e) die ukrainischen terminologischen Standards verfügen über kein unifiziertes Formungskonzept, deswegen kann man nicht selten die Vorschläge hören, die Definitionen parallel russisch und ukrainisch vorzulegen, was in der Tat die einseitige Dominierung von Russisch heißt.

Es sei die Tatsache unterstrichen, daß in den letzten Jahren die Fachleute in verschiedenen Wissenszweigen, nachdem sie das Bedürfnis nach ukrainischen Wörterbüchern wahrgenommen haben, aktiv anfangen, verschiedene Übersetzungswörterbücher (hauptsächlich russisch-ukrainische Wörterbücher) auszuarbeiten. Neben den positiven Ergebnissen solcher Tätigkeit sind auch die Schattenseiten nicht außer Acht gelassen werden, weil auch immerhin entweder die Orientierung auf Russisch oder auf Ukrainisch in der Art von den 20-er Jahren des 19. Jhds fortgesetzt wird, wobei man die letztere für „absolut reine“, frei von Entlehnungen (in erster Linie von Russizismen) hält. Als Resultat werden wieder die Lehnübersetzungen realisiert oder die Wörter wieder zur Welt gebracht, welche seit langem aus dem Gebrauch verschwunden sind und keine Chancen besitzen, wieder belebt zu werden.

Die Zentripetaltendenzen in der Sowjetunion offenbarten sich nicht nur in der Wirtschaft, sondern auch in der linguistischen Tätigkeit, insbesondere in den Prozessen der Terminologieschöpfung. Ohne die wesentliche Rolle der russischen Sprache als Vermittler in den zwischensprachlichen Beziehungen einerseits zu erniedrigen, während man andererseits die Einseitigkeit der russisch-ukrainischen Sprachinterferenz kritisch einschätzt, muß man feststellen, daß die russische Sprache zusammen mit neuen Fachwörtern auch mehrere Mängel subjektiven Charakters „geschenkt“ hat. Darunter sind z.B. solche Erscheinungen gemeint wie die mißlungenen Lehnübersetzungen aus anderen europäischen Sprachen über die russische Sprache, ein künstlicher Abzug von standhaft gewordenen allgemeineuropäischen Mustern, falsche orthographische oder orthoepische Anwendungen, wie z.B. eine angebundene Übergabe des stummen „r“ in der englischen Sprache über den russischen Laut „x“ – „hot-dog“, „happy end“, „holding“ oder die ungeschliffenen Simplifizierungen bei der Wiedergabe von deutschen Umlauten und Diphthongen, das Vorhandensein von Lücken in Terminologiesystemen, die Konstruierung von Fachwortungeheuer u.s.w. (7).

In dieser Situation soll man eine Paradoxe berücksichtigen und ausnutzen: die ukrainische Terminologie, welche heute geformt wird, befindet sich in einer vorteilhaften Situation im Vergleich zu anderen Sprachen, weil eine Möglichkeit besteht, die Erfahrung von anderen nationalen Terminologien in Betracht zu ziehen und die Fehler a posteriori zu vermeiden.

Wir sind davon überzeugt, daß sich die ukrainische Fachwortkunde auf drei Faktoren stützen soll:

- a) die Erfahrung von den verbreitetsten Sprachen entwickelter Länder, in erster Linie von Sprachen als Produzenten eines gegebenen Terminologiesystems;
- b) die positive Praxis in den letzten Jahrzehnten der terminologischen Schule der ehemaligen Sowjetunion, welche in vielen Aspekten vorhanden war;
- c) die Erfahrung der ukrainischen Terminologiepraxis in verschiedenen Regionen der Ukraine und im Ausland im Laufe von ungefähr 150 Jahren.

Die Kompliziertheit besteht auch darin, daß die Koordinaten in jedem konkreten Fall vereinzelt bestimmt werden sollen. Man darf zugleich die erworbene Erfahrung wie auch die Herausforderungen der Zeit nicht außer Sicht lassen, man soll vorsichtig und beständig diese drei Faktoren zusammenbringen.

Falls wir den Wunsch haben, daß Ukrainisch auf das Niveau von bekannten Weltsprachen gebracht wird, so müssen wir ein unvermeidliches Bedürfnis anerkennen, in der nächsten Zeit folgende Aufgaben zu lösen:

- a) die Prinzipien der ukrainischen Fachwortschöpfung ausarbeiten und verkörpern, die auf direkten Kontakten mit produzierenden Sprachen beruhen;
- b) auf der formellen, wie auch auf der definitiven, Ebene die Grenzen der Internationalisierung von Fachwörtern feststellen;
- c) die Vorschläge für den Ausbau von Standards auf ukrainische Termini und ihre Definitionen vorlegen, indem man dabei aus der vorhandenen Praxis ausgeht;
- d) den Status und die Hauptgrundlagen der ukrainischen Terminologiewissenschaft bestimmen, während man zugleich die Metasprache dieser linguistischen Disziplin normalisiert;
- e) umfangreich die neuorganisierten ukrainischen Terminologiesysteme in die Studiumpraxis einführen (anfänglich können es die russisch-ukrainischen Glossare zu den vorhandenen russischen Lehrbüchern sein).

Es sei auch erwähnt, daß wir uns in erster Linie auf unser eigenes Fundament orientieren sollen, indem wir die ukrainischen Terminologiesysteme formen; wir sollen auch die Tatsache im Gedächtnis behalten, daß wir die Wörterbücher nicht für die Bibliotheken, sondern für den heutigen breiten Gebrauch schaffen, wo das letzte Wort dem Benutzer, dem Fachmann gehört, wo die Tradition nicht die letzte Rolle spielt, die Tradition, welche auf eine vollständige Kommunikation, auf ein Verständnis unter den Fachleuten in einem Lande, wie auch auf einem internationalen Niveau, orientiert ist.

Darüber hinaus können wir behaupten, daß die Linguisten als Fachleute im Bereich der fremdsprachlichen Terminologiewissenschaft ihren wesentlichen Beitrag zur Entwicklung und Normalisierung der ukrainischen Terminologie leisten können und sollen, indem sie sich auf die Kenntnis von Fremdsprachen stützen, die Terminologiesysteme als Orientierungsgrundlage betrachten und die Methoden der linguistischen Analyse und des Vergleichs beherrschen. Sie haben also das Recht, den Fachleuten diese oder jene Varianten der Terminologieschöpfung vorzuschlagen.

Wir machen da auch einen Vermerk, daß die Metasprache der Theorie der terminologischen Regelung selbst eine Regelung braucht, weshalb wir es für notwendig halten, ohne zusätzliche Diskussionen hier kurz unser Verständnis von Hauptbegriffen vorzuschlagen:

- 1) unter einer „Spezialisierung“ wäre es empfehlenswert, die Informationssaturation zu verstehen, welche den Erfordernissen eines entsprechenden Zweiges der Wissenschaft und der Technik entspricht, d.h. die Schaffung des Intentionals von Begriffen, die die Spezifik dieses Berufs bestimmen; es versteht sich von selbst, daß diese Funktion nur ein Fachmann in diesem Wissensbereich realisieren kann;
- 2) unter einer „Systematisierung“ von Fachwörtern verstehen wir die Einbeziehung von Fachwörtern und Begriffen in ein terminologisches System, welches die intentionalen und die extentionalen Charakteristiken eines einzelnen Fachwortes, wie auch die Systembeziehungen zwischen verschiedenen terminologischen Einheiten berücksichtigt; dieses Prinzip ist die Prärogative von Gesetzen der Logik und der Theorie eines entsprechenden Wissens;
- 3) das Prinzip der „Logisation“ sieht einen zielstrebigem Prozeß der Anwendung von logischen Folgen und Verifikationsregeln (die Feststellung der Wahrheit), die Identifizierung eines Gegenstandes gemäß der Wirklichkeit; in diesen Sphären dominiert, gewiß, die Logik;
- 4) in Anbetracht des Vorhandenseins von technischen und sprachlichen Standards (siehe 2), welche verschiedener Herkunft sind, schlagen wir vor, die linguistischen Standards auf ein Terminologiesystem im allgemeinen und auf einzelne Wortbildungsmodelle zu unterscheiden; im letzten Fall geht es über die strukturell-semanticen „Standards“, nach welchen die Bildung und die Normalisierung von Fachwörtern erfolgen kann; die Schaffung von solchen Mustern, Modellen, Etalons auf der Grundlage von semantischen Beziehungen zwischen den Bestandteilen von Derivations- und Wortbildungsbesonderheiten ist eine der vorhergehenden Etappen der Ausarbeitung von einem allgemeinen terminologischen Standard (5);
- 5) der Begriff „Unifikation“ sieht die Abschaffung von Formverschiedenheiten (z.B. die Elimination der Synonymie im Bereiche eines Terminologiesystems) oder die Unifikation von Bedeutungen, d.h. die Beseitigung der Polysemie und der semantischen Homonymie;
- 6) „die Harmonisation“ heißt der Prozeß, welcher auf die Schaffung eines einheitlichen Systems von Begriffen in den Subsprachen und entsprechenden Terminologiesystemen gerichtet ist; das bezieht sich auch auf die Koordinierung von Fachwörtern und Begriffen in verschiedenen Bereichen und Sprachen;
- 7) als Resultat des Prozesses der Harmonisation auf der Ebene von einigen Sprachen ist die „Internationalisierung“ von terminologischen Einheiten;
- 8) als die breitesten Begriffe gelten „Normalisierung“ und „Regelung“, die synonymisch sind.

Alle anderen Termini der Metasprache der Normalisierung von Fachwörtern dublieren die obengenannten Funktionen oder orientieren die Linguisten nicht eindeutig auf ihre Lösung (z.B., „Aggregieren“, „Universalisation“, „Reglementation“, „Simplifikation“,

„Spezifikation“, „Typisation“ u.s.w.). Es ist nicht schwer zu bemerken, daß für die Aufgaben der linguistischen Regelung der Terminologie 4 Funktionen am wichtigsten sind: Standardisation, Unifikation, Internationalisierung, Normalisierung.

Es wird von uns vorgeschlagen, für ein objektives Kriterium im Prozeß der Normalisierung der Terminologie die Stufe der Motiviertheit einer terminologischen Einheit zu halten, unter welcher wir die Zusammenhänge zwischen der inneren Wortform (d.h. der buchstäblichen Bedeutung) und der Definition (der lexikalischen Bedeutung) eines Fachwortes verstehen (siehe näher 6). Eben jenes Fachwort gilt als „ein besseres“, passendes für den Gebrauch, welches in seiner Form deutlicher und breiter den Sinn eines Begriffes widerspiegelt. Zu diesem Zweck haben wir einige Parameter für die Einschätzung von solchen Entsprechungen auf der Basis der Methodik von binären semantischen Bäumen vorgeschlagen, welche von Professor Eduard Skorochojko ausgearbeitet wurde (4). Solche Gegenüberstellungen kann man eigentlich visuell durch das Vorhandensein von lexikalischen Bestandteilen selbst in der inneren Wortform und der Definition des Terminus tun.

Solche Daten ermöglichen es, die Elimination der Synonymie durchzuführen, indem aus der Gruppe von Synonymen ein semantisch inhaltvolleres Fachwort vorgeschlagen wird; sie argumentieren zusätzlich dieses oder jenes strukturell-semantische Modell; sie vereinbaren die äußerlich widersprüchlichen Forderungen nach Kürze und Genauigkeit vom Fachwort; sie helfen bei der Wahl einer perspektivreicheren Variante des Fachwortes aus anderen Weltsprachen; sie regulieren das Problem des Gebrauchs von Internationalismen u.s.w.

Die Resultate von unseren Experimenten, wie auch die Verallgemeinerung von Haupttendenzen in der Anwendung von terminologischen Internationalismen, geben uns unter anderem das Recht, folgende Schlußfolgerungen zu ziehen:

- 1) Man braucht nach einem Fremdwort nicht zu suchen, wenn in der Muttersprache eine gewohnte und motivierte lexikalische Einheit mit derselben Bedeutung funktioniert.
- 2) Wenn ein Synonym, welches auf der Basis von den Ressourcen der Muttersprache gebildet ist, nach den Bewertungen der Motiviertheit und der Anzahl von lexikalischen Bestandteilen mit denen eines Internationalismus zusammenfällt, so ist der Gebrauch des ersten Wortes dank dem Verständnis und einer organischen Einverleibung der inneren Wortform eines muttersprachlichen Wortes empfehlenswerter.
- 3) Die terminologischen Lücken sind durch die vorhandenen Internationalismen auszufüllen.
- 4) Im Fall von ungleichen Parametern der Motiviertheit von Synonymen soll ein mehr motiviertes Fachwort bevorzugt werden.

Auf diese und ähnliche Grundlagen stützt sich die Schaffung einer Reihe von nationalen Terminologiesystemen durch Autorenkollektive, welchen prominente Fachleute, Philologen-Ukrainisten, Germanisten und Fachleute in der Computertechnik angehörten. Alle Wörterbücher sind mehrsprachig, als Übersetzungswörterbuch und Glossar zugleich,

was die Auswahl von ukrainischen Termini nicht nur veranschaulicht, erleichtert und objektiviert, sondern auch als eine Grundlage für die Formung von entsprechenden terminologischen Standards dient (10, 11, 12). Diese Arbeit nimmt mit jedem Jahr im Rahmen des Ukrainischen Terminologischen Verbandes zu und bringt perspektivreiche Resultate.

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TERMINOLOGIE IN DER PRAXIS DER UKRAINE – A COMMENTARY

1 INTRODUCTION

The purpose of this colloquium is to create a reunion of the Western and Eastern research communities within terminology in order to clarify similarities and differences and enable future cooperation. The labels or notions of ‘Western’ and ‘Eastern’ may create an impression of internal homogeneity within each community that might be questioned, however. Also, the purpose is to compare the research communities with special regard to their *theoretical* approaches, which might imply that a comparison of the various social needs and sociolinguistic contexts of terminology is less relevant.

I think that any attempt to separate terminology from its social context would be less than satisfactory since it has been widely recognised for years that a community’s terminology is shaped and weighted according to the social and communicative needs involved. In the case of Ukrainian, where problems of language development and term-formation seem to play a major role, the cultural and social contexts seem crucial. Terminology interacts with the general cultural ‘climate’ in a given society, implying that terminological theory as such is not the only point of reference, even if it is of primary importance. Differences and/or commonalities of cultural and linguistic context and of social needs should, consequently, be taken into account.

The following comments are not intended as an opposition. The reading of prof. Kyiak’s paper triggers various thoughts and I take the opportunity of elaborating on some of them, more or less systematically.

2 A PICTURE OF UKRAINIAN TERMINOLOGY

My interpretation of the main features of Ukrainian terminology may be summarised in the following four points:

- *Language-planning orientation*: Ukrainian terminology is directed towards language development as well as domain defense and conquest. This is comparable to the situation in a large number of ‘Western’ communities and is considered a parametrical feature.
- *Strongly prescriptive goals*: Ukrainian terminology is directed towards standardisation, including metalinguistic standardisation, concerning the expression as well as the conceptual level, AND
- *Interdisciplinary approach*: it recognises the established principles of interdisciplinarity, specifically including logic. The prescriptive and interdisciplinary approach

makes Ukrainian terminology compatible to “mainstream” or ‘classic’ approaches to terminology.

- *Established theoretical platform:* Terminology is not carried out arbitrarily. Ukrainian terminology explicitly recognises the ‘General theory of terminology’, but also the importance of the Russian school of terminology.

3 DIFFERENCES/SIMILARITIES WITH RESPECT TO ‘SCHOOLS’

The question of whether terminological ‘schools’ really exist has received no unanimous answer. Different analyses and typologies have been presented, out of which three could serve as an appropriate framework:

A) Laurén and Picht 1993 (e.g. pp. 534–536)

These authors distinguish five ‘schools’: Canada (Quebec), Prague, Nordic region, Soviet, Vienna. These schools form a unity without clear-cut boundaries but nevertheless range on a scale between the poles of ‘linguistic’ vs. ‘interdisciplinary’, and they display different points of gravity (“Schwerpunkte”) within this unity. It seems that one important Ukrainian “Schwerpunkt” would be the area of language planning and linguistic aspects of terminology.

B) Cabré 1998 (e.g. p. 16, following Auger 1988):

According to Cabré, the schools of terminology fall under three broad orientations:

- Terminology adapted to the linguistic system: Vienna, Prague and Moscow, oriented towards standardisation; subject specialists play a prominent part.
- Translation-oriented terminology: Quebec, Wallonia, various multilingual international bodies creating terminological equivalents.
- Terminology oriented towards language planning: Quebec, Basque region, Catalonia, newly independent countries in Northern and Central Africa “in which a policy aiming at changing the status of a regional language exists”. This orientation is concerned with word-formation in the native language; linguists play a more prominent part.

It seems that the Ukraine shows a combination of the first and third orientation: we find both a “Vienna” orientation (evidenced by the emphasis on standardisation, the interdisciplinary approach etc.), and a “Quebec” orientation (evidenced by the language planning goals and context).

C) Temmerman 2000 (18ff.):

In her account of “Traditional terminology”, Temmerman claims that all known ‘schools’ are variants of Traditional Terminology and that terminology needs an extended scope, incorporating new linguistic insights. The main distinguishing parameter is claimed to be descriptivism vs., traditionally, prescriptivism. Within this analysis, the terminology of Ukraine would need a descriptive reorientation similar to that of the ‘Western’ approaches, even though it does not seem quite clear to what extent terminology is allowed to be normative and problem-solving, or whether prescriptive attitudes should be totally excluded from terminology.

Cabré’s analysis leaves us with the impression that the ‘Western’ research communities are heterogeneous, whereas Laurén and Picht, on the other hand, emphasise the common ground unifying the various schools. From prof. Kyyak’s presentation it seems clear that in general the Ukrainian conception of terminology work is explicitly inspired by the mainstream or Wüster-based Vienna tradition. Other points in his presentation, notably the comments on ‘motivation’ (below, section 5.2), clearly demonstrate the theoretical influence from the Russian and Prague approaches. It seems difficult to establish a clear-cut dichotomy of ‘Eastern’ versus ‘Western’.

4 SOCIAL, ECONOMIC AND SOCIOLINGUISTIC CONTEXT

In prof. Kyyak’s presentation, emphasis is given to problems of language development and the status of the Ukrainian language. The first order goal concerns terminological language planning at state level, developing Ukrainian into a full-fledged communication tool in all public spheres (“Falls wir den Wunsch haben, daß Ukrainisch auf das Niveau von bekannten Welt Sprachen gebracht wird...”). Functional equivalence is a reasonable ambition for a community counting 50 mill. inhabitants:

“Seit der Konstituierung der ukrainischen Sprache als Staatssprache entsteht das Problem ihrer Ausnutzung in allen Bereichen der Wissenschaft und der Technik. Bis zu dieser Zeit dominierte in der ehemaligen Sowjetunion auf allen Ebenen Russisch, in welcher fast alle Untersuchungen, Beiträge, Lehrbücher u.s.w. veröffentlicht wurden. Vor uns steht die Aufgabe, den Ukrainern selbst ein Verständnis beizubringen, daß Ukrainisch auch so erfolgreich nicht nur im Bereich des Alltagslebens, sondern auch in der Wissenschaft funktionieren kann“.

The aim and function of terminology as a *domain-defending* discipline is widely recognised. Terminology in the Ukraine appears as a crucial domain-defending field of activity within a sphere dominated by one language, in casu Russian. Developing and elaborating the Ukrainian language is at the same time a process of what might be referred to as *‘domain conquest’* (cf. Laurén, Myking and Picht 2002:27), shared by a number of other former republics of the Soviet Union. This is, however, no clear-cut distinguishing characteristic of ‘Eastern’ vs. ‘Western’.

Within at least four large camps, the English, German, French, and Spanish ones, terminology is discussed in various forms according to sociolinguistic conditions. In addition, terminology is also discussed within a number of smaller languages, regions, and communities of various types, in which the influences may be crossing and shifting. The status of the English language as the terminology-producing and dominant language at large is a major issue, and terminology in most countries has to deal with this fact.

One might wonder whether all the Post-Soviet nations, marked by considerable linguistic differences, could benefit from the same set of principles and learn from each other across language barriers. One might also ask to what extent English and Russian as dominant languages could be compared, given the fact that their way of exerting pressure and their social and political context differ considerably: While English is a popular and appealing language in most countries and in most spheres of communication, I imagine that Russian does not hold such a position. For this reason, I am a little surprised that the socio-cultural role of English is not at all addressed in prof. Kyyak's talk, as I imagine that the role of English is likely to gain importance in the years to come along with its growing economical and cultural influence.

Prof. Kyyak distinguishes between 'developed' and 'non-developed' countries, identifying terminological development with the former:

“Die entwickelten Länder haben die Etappe der Terminologieformung schon hinter sich und beruhen auf der Stufe der internationalen Vereinbarung, während in anderen Ländern die Fachwortkundler noch an der Bildung von nationalen Terminologien arbeiten. [...] Die entwickelten Länder leisten eine wesentliche Hilfe für jene Länder, die noch im Prozeß der Formung ihrer eigenen Terminologie auf der Basis ihrer nationalen Sprache verbleiben“.

This dichotomy could be compared to Cabré's analysis according to which highly industrialized countries differ from industrialising countries with respect to standardisation:

“A society that produces terms can afford to wait and see how its language is evolving, because its own creative vitality already ensures continuity of the language. A society that must continuously import technologies, science and technology, and which is the recipient of knowledge created by others in other languages may want to control the entrance of adapted or direct borrowings if it wants to ensure that its own language is not overwhelmed by foreign structures. For these reasons these societies exercise a stricter control over neologisms and establish principles to deal with them” (Cabré 1998:211)

However, provided it makes sense to classify the Ukraine as a 'developing' or industrialising country in an economic sense and at the same time as a terminology-borrowing country in a sociolinguistic sense, the problem mentioned becomes even more intriguing: Most 'Western' countries are of course 'developed' (industrialised) in an economic sense, but nevertheless they are at the same time terminology-borrowing, – in casu: from English. The notion of 'developed' countries should not be interpreted over-optimistically: The growth of knowledge always leaves terminology work lagging behind, irrespective of the economic

level. I suspect that no other than English-speaking communities (if any) may abandon conscious terminology creation completely as a result of the benefits of harmonisation.

Between the social and economic level and the internal linguistic level there is a close relationship – the problem of defining the appropriate models of term formation with respect to Russian and to English. I assume that the problem of (re)creating linguistic independence vis-à-vis Russian is shared by other newly independent post-Soviet republics, despite considerable linguistic differences and typological distance. If Cabré (1998:211) is right that

“Indo-European languages can rely on specific antecedents in the spontaneous terminology created in the dominant languages in technology [...] They take the terms of the most representative languages as models to create their own terms, bearing in mind that, depending on the special field, they cannot stray too far from the languages used in international relations. Languages in other language families [...] are quite different in this respect. They must propose their own models for formation and make a choice,”

then Ukrainian terminology, owing to linguistic closeness, is in a “privileged” position vis-à-vis Russian as well as English, compared to a non-Indo-European language such as Estonian. In prof. Kyyak’s paper the Russian school of terminology is mentioned as an important theoretical support, and I assume that the common theoretical and methodological framework provided by this school still facilitates cooperation among several Post-Soviet Countries, in spite of the considerable language differences mentioned above.

The strong interest in internationalisms within Latvian terminology outlined by Baldunciks (2002) is also emphasised in prof. Kyyak’s paper. Whether or not internationalisms provide a common ground across typological borders is an interesting question. “Genuine” (i.e. ‘distinct’) linguistic models cannot be compared between closely-related neighbouring languages such as Russian and Ukrainian or between typologically non-related languages such as Estonian and Russian, respectively. Also, in spite of the fact that the Baltic countries have directed their cultural and economic activity towards the Western region and are exposed to the English-speaking world, the influence of English and the possible challenges posed by this influence with respect to Ukrainian are not dealt with by prof. Kyyak.

Within the ‘Eastern’ research communities, I assume, there is a complex situation of *homogeneity* of theory and common challenges, along with a *heterogeneity* that is largely language-specific and also possibly due to different economic orientations.

5 SPECIAL PROBLEMS AND POINTS TO BE CLARIFIED

Within and across the ‘Eastern’/‘Western’ dichotomy there are several theoretical problems to be clarified. I restrict myself to problems related to term-formation, owing to the fact that according to my analysis these problems seem the most salient with reference to the Ukrainian experience. Some of these questions have been discussed extensively by theorists not

only in terminology, but also within language planning in general, and these problems are important in any community in which there is a strong interest in language cultivation.

5.1 The relationship between terminology and language planning:

In principle, it is possible to distinguish between ‘pure’ terminology on the one hand and terminology planning and standardisation on the other (“Zu diesen rein terminologischen Problemen fügt man das Problem der Vereinbarung von Terminologien auf der interdisziplinären, zwischenstaatlichen und zwischenregionalen Ebene hinzu.”). The relationship between such fields of activity may be one of cooperation and joining forces, but also of competition, and several questions may be asked:

- Terminology as opposed to language planning: Is terminology seen as a goal in itself?
- Are the disciplines independent, and/or to which extent do they overlap?
- To what extent do standardisation and language development support or contradict each other, and to what extent do they draw away attention from each other, financially and culturally?

There is nothing in prof. Kyyak’s description indicating that Ukrainian terminology is hampered by (competition with) general language planning. Nevertheless, the questions seem motivated also by the Ukrainian case since it is clear that Ukrainian terminology is affected to a major extent by the general ‘sociolinguistic climate’ in the Ukraine, as regards the overall ambition of domain conquering as well as more specific issues of (sometimes excessive) purism dealt with in the paper.

Some ‘Western’ experiences definitely demonstrate cases of competition, and there is a tendency that the more emphasis a community places on general language cultivation, the more likely it is that needs of ‘pure’ terminology are felt to be neglected. The Icelandic discussion provides an excellent case for discussion: While Jónsson (1990:211f.) claims that owing to a nationalistic and purist orientation neology and traditional language policy have been an obstacle to terminology, others claim that it is possible to regard terminological principles as a tool serving purposes of language planning, but without being identical to it:

“The pursuit of terminological theory is not in itself an act of language cultivation [...] the theory of terminology is simply a tool in carrying out the policy, i.e. the cultivation of language, i.e. the cultivation of the language, and in particular in developing the vocabulary (Arnason and Helgadóttir 1993:11)”.

This problem concerns internal linguistic aspects (“What is a good neologism, and how do we create it?”) but may also affect economic aspects: Whereas general language cultivation is a governmental responsibility, terminology is often dependent on private enterprise. Even though the Icelandic language culture is not fully comparable to other cultures, these dilemmas could in many respects be generalised to other ‘Western’ communities. The continuation of Arnason and Helgadóttir (1993:11) reads:

“It is possible to be a terminologist [...] without being a *málræktarmaður* (“language cultivator”) and it is also possible to be a *málræktarmaður* without being a terminologist. The ideal is of course to have a terminologist and the *málræktarmaður* in one and the same person.”

The parametrical position of role prominence – that of the subject specialists (cf. “Vienna school”) or that of the linguist (“Quebec school”) – is dealt with by prof. Kyyak, and the two roles are contrasted:

“wir sollen auch im Gedächtnis die Tatsache behalten, daß wir die Wörterbücher nicht für die Bibliotheken, sondern für den heutigen breiten Gebrauch schaffen, wo das letzte Wort dem Benutzer, dem Fachmann gehört, wo die Tradition nicht die letzte Rolle spielt, die Tradition, welche auf eine vollständige Kommunikation, auf ein Verständnis unter den Fachleuten in einem Lande, wie auch auf einem internationalen Niveau orientiert ist [...] Darüber hinaus können wir behaupten, daß die Linguisten als Fachleute im Bereich der fremdsprachlichen Terminologiewissenschaft ihren wesentlichen Beitrag in die Entwicklung und Normalisierung der ukrainischen Terminologie leisten können und sollen, indem sie sich auf die Kenntnis von Fremdsprachen stützen, die Terminologiesysteme als Orientierungsgrundlage betrachten, die Methoden der linguistischen Analyse und des Vergleichs beherrschen. Sie haben also das Recht, den Fachleuten diese oder jene Varianten der Terminologieschöpfung vorzuschlagen“ [italics added].

These two concerns seem to be balanced in a way that is similar to ‘Western’ mainstream approaches: The terminologist proposes, the subject specialist decides. Nevertheless, considering the strong emphasis placed on calculating acceptance criteria (mentioned below) and the orientation of the general language culture, I assume that Ukrainian terminology will not escape normal professional conflicts between the two when it comes to specific decisions.

5.2 The question of term-formation models and guidelines for term selection

Prof. Kyyak points to the dominance of Russian models of term formation:

“die vorhandenen russisch-ukrainischen Wörterbücher und ukrainische Lehrbücher leiden unter einer vollen Lehnübersetzung der Fachwörter aus dem Russischen, ohne dabei die Normen der ukrainischen Sprache zu berücksichtigen“.

Ukrainian terminology seems to face a cultural problem which is also in conflict with the principle of linguistic correctness, cf. ISO704:

“[Man soll] feststellen, daß die russische Sprache zusammen mit neuen Fachwörtern auch mehrere Mängel subjektiven Charakters „geschenkt“ hat. Darunter werden die Erscheinungen gemeint, wie z.B. die mißlungenen Lehnübersetzungen aus anderen europäischen Sprachen über die russische Sprache, ein künstlicher Abzug von standhaft

gewordenen allgemeuropäischen Mustern, falsche orthographische oder orthoepische Anwendungen, [...] das Vorhandensein von Lücken in Terminologiesystemen, die Konstruierung von Fachwortungeheuer u.s.w.“

It follows from terminological recommendations (e.g. ISO704) that term formation should respect the norms of the language in question. The application of this principle has to be specified:

- What is ‘good’ word formation in the context of a given language community?
- Is there a correlation between certain morphological patterns or classes and the ability of terms to express form-content relationship?

In the Ukrainian context, the question of how to define the ‘national’, ‘genuine’, or ‘distinct’ models of term formation is further complicated by the fact that the Russian and the Ukrainian languages are closely related, to the extent that semi-communication is possible. Evidence from ‘Western’ contexts (Norwegian vis-à-vis Danish, or Norwegian Nynorsk vis-à-vis Bokmål) supports the view that such questions are often particularly delicate in semi-communicative settings precisely because a psycholinguistic drive towards distinctness may interact with purist ideology to the extent that common usage among specialists is not respected (Cf. the parametrical roles of linguists or subject specialists, respectively).

The problem of excessive purism mentioned by prof. Kyyak is apparently a problem of language culture in general, not a problem specific to terminology:

“Neben den positiven Ergebnissen solcher Tätigkeit sind auch die Schattenseiten nicht außer Acht gelassen werden, weil auch immerhin entweder die Orientierung auf Russisch, oder auf Ukrainisch in der Art von 20-er Jahren des 19. Jhds fortgesetzt wird, wobei man die letztere für „absolut reine“, frei von Entlehnungen (in erster Linie von Russizismen) hält. Als Resultat werden wieder die Lehnübersetzungen realisiert oder die Wörter wieder zur Welt gebracht, welche seit langem aus dem Gebrauch verschwunden sind und keine Chancen besitzen, wieder belebt zu werden.“

If the language community aims at preserving unity, it is often maintained that word models in special language should correspond to the overall accepted models of general language, cf. the case of Icelandic. It is important to terminology, consequently, to ask whether different models are acceptable from the point of view of sublanguages and sub-communities: Could there be different ‘laws’ for terms and general words, as indicated by Sigurður Jónsson (1990:211)?

5.3 A particular issue: ‘motivation’

Prof. Kyyak places considerable emphasis on the principle of ‘motivation’ and its various consequences. This is by no means surprising if we take into account the prominent place occupied by this principle in ‘Eastern’ writings on terminology and word-formation, e.g. by Drozd and Seibicke, Jan Horecky, Wolfgang Fleischer, Gunther Neubert, etc.

As regards the theoretical and linguistic view on motivation, it seems to me that this question has taken on a controversial, unclear, and disputed parametrical status within terminology: There are problems defining the concept, there are pseudo-discussions of its applicability as a consequence of exaggerated interpretations, and there might of course be a genuine disagreement as regards its applicability:

- The validity and range of application of the principle of ‘motivation’
- The interrelation of motivation and purism – could there be ‘motivated’ internationalisms? How justified is the dichotomy of ‘motivated terms’ and ‘internationalisms’?
- The relationship between ‘motivation’ and ‘purism’ in the Ukrainian context: Are they identical, is the one dependent on the other, what are the differences and interdependencies between general and special language in the domain of word-formation?
- The concept of ‘motivation’: What is the interplay of ‘motivated’ and ‘non-motivated’, is there a strict dichotomy?
- What types of motivation are accepted and acceptable from a theoretical and socio-linguistic point of view? What about metaphorical motivation (figurative language), is it recognised?

Motivation is conceived of as transparency between concept and expression, following the traditions of the Soviet and Prague ‘schools’ of terminology. Within these traditions, motivation is seen as a system-internal property of terms (or rather: of ‘terminological signs’). This kind of transparency is given supremacy among term selection criteria and should be used when assessing synonymic groups and deciding term choices within strongly normative contexts:

“Es wird von uns vorgeschlagen, für ein objektives Kriterium im Prozeß der Normalisierung der Terminologie die Stufe der Motiviertheit einer terminologischen Einheit zu halten, unter welcher wir die Zusammenhänge zwischen der inneren Wortform (d.h. der buchstäblichen Bedeutung) und der Definition (der lexikalischen Bedeutung) eines Fachwortes verstehen (siehe näher 6). *Eben jenes Fachwort gilt als „ein besseres“, passendes für den Gebrauch, welches in seiner Form deutlicher und breiter den Sinn eines Begriffes widerspiegelt.*“ [italics added].

The problem is discussed in Wüster’s works and is reflected in one of the core principles in e.g. ISO 704 (the principle of ‘accuracy’), hence it is an important principle of the ‘Western’ approach as well. The principle is also important within general language cultivation in many ‘Western’ communities; in particular it has a strong significance in communities developing and protecting their language, i.e. the principle seems linked to domain-defense situations. As Arnason and Helgadóttir (1993:10, see also p. 15f.) put it: “one of the demands made on Icelandic terms is that they be transparent”. On the other hand, in his book from 1984 (p. 135) Guy Rondeau maintains that motivation of terms might hamper comprehension if it is founded on general language semantics interfering with the scientific concept

that is to be communicated. He does not specify which kind of motivation (morphological and/or semantic), nor the constraints limiting the applicability of the principle (cf. below).

In Wüster's own discussion, the pragmatic balance of motivation vs. economy is emphasised; there are restrictions on the applicability of this principle, and how to strike the balance is very often a matter of deciding in each specific case – generalisations are difficult to make.

The interrelations of motivation and purism are delicate and call for clarification. In spite of Wüster's discussion, there seems to be no universal agreement on this topic neither among 'Western' terminologists nor in the language communities in general. Within the socio-linguistics of purism, especially George Thomas (Thomas 1991:49ff.) has been associated with the „intelligibility argument”, and as such, it is seen as only a rationalisation of purism instead of as a genuine enhancement of the communicative value of a neologism in its own right. Thomas suggests that the importance of motivation ('intelligibility') does not stem from its enhancement of understanding, but from its capability of keeping the language community together and preventing clefts from arising between language and sub-languages, simply because the principle promotes native word-formation.

It may come as a surprise that a tendency to assign a parametrical value to the dichotomy of motivation vs. arbitrariness has recently occurred. Rita Temmerman (2000) criticises Traditional Terminology for relying on an obsolete paradigm of arbitrariness. She maintains in a critical remark to Rondeau (cf. above) that “traditional Terminology is phobic about this phenomenon” that is, about motivation (2000:44). Motivation is appreciated as a basic semiotic tenet in cognitive linguistics, of which sociocognitive terminology is a branch.

This confusion may be summarized briefly as follows:

- Ukrainian terminology (as a representative of the 'Eastern' approaches) favours motivation and is strongly prescriptive
- Sociocognitive terminology favours motivation and is anti-prescriptive
- Traditional terminology, according to my interpretation (JM) is prescriptively oriented and favours motivation as one important criterion that has to be balanced with other criteria

However, the concepts, or perhaps rather conceptions, of 'motivation' are not identical in these cases. In the case of sociocognitive terminology, the focus of interest is *metaphorical concept formation*, i.e., metaphorical extension of meaning expressed by the traditional category of 'semantic motivation' in writings on term formation (cf. Drozd and Seibicke and others.). In the case of 'Eastern' terminology, it is quite clear that the focus is on *morphological transparency*, i.e., a correspondence between concept and representation that is sometimes said to maximise 'objective' descriptiveness.

The position taken by prof. Kyyak demonstrates that Ukrainian (or 'Eastern') terminology is closer to the 'classic' approach than to sociocognitive terminology in this respect. The ap-

parent lack of interest in semantic motivation within ‘Eastern’ writings – in contrast to a number of passages in Wüster’s own writings – even makes Wüster’s position an intermediary one between ‘Eastern’ and sociocognitive terminology with respect to this parameter.

It seems that instead of viewing ‘motivation’ as a system-inherent and grammatical property of terms, terminology should adopt a more inference-based approach and appreciate other types than morphological motivation as useful for normative purposes (cf. Myking 1997). While it is true (cf. above) that : “one of the demands made on Icelandic terms is that they be transparent”, Icelandic examples such as *tölva* ‘computer’ (from *tala* ‘number’ and *völva* ‘witch’) demonstrate that efficient motivation does not always equal morphological transparency, and that the boundary between morphological and semantic motivation may be fuzzy.

5.4 Motivation and internationalisms

An interest in ‘internationalisms’ has been strong and typical of the Soviet approach and was also important to Wüster and the German tradition. In recent ‘Western’ approaches, this topic is not dealt with in detail. The dichotomy of internationalisms as opposed to motivated terms has been customary, and international words, loanwords, etc. as such have sometimes not been considered motivated, cf. Drozd and Seibicke 1973:129 (whereas Kocourek, 1982:175, demonstrates a different view).

The topic of internationalisms has been dealt with by Juris Baldunciks, who points to the difficulty of providing a consistent definition of ‘internationalism’ and defines it in the following way:

“A word becomes an international word [...] through borrowing from a source language into a number of non-cognate languages over a shorter or longer period of time, either directly or with the help of an intermediary [...]. The most appropriate solution [of distribution, JM] for the region of Eurolanguages [...] seems distribution of a word in three major language groups (Germanic, Romance and Slavonic) with slight variations including smaller language groups“ (Baldunciks 2002:455).

Could internationalisms serve similar functions vis-à-vis English loan words as previously they did vis-à-vis Russian ones? Neither Baldunciks nor Kyyjak elaborates on this, but reading Baldunciks one gets a certain impression of pessimism (pp. 456–457): a loan is not necessarily an internationalism in the sense of the above definition, and international words - formed e.g. from Greek or Latin constituents – cannot provide a barrier against less than systematic and imbalanced use of direct loans from English. Seeing that the issue of English is subject to little discussion in prof. Kyyjak’s paper (as perhaps in the Ukrainian context in general), I restrict myself to pointing to this problem.

As mentioned above, ‘motivated’ often coincides with ‘native’. Equating those two concepts is a widespread practice within the European tradition which is clearly highly compatible with most variants of purist attitudes to general language cultivation – it makes gen-

eral and special language cultivation work in the same direction. But precisely because the communicative and the cultural dimension are so intertwined, it is difficult to decide which is which and where the borders are to be drawn between them.

But are ‘internationalisms’ really non-motivated terms, and on what grounds may the dichotomy of international vs. motivated be defended? International words may of course be morphologically analysable and as such transparent. Further, unanalysable internationalisms may also be recognisable and known across languages and as such transparent, but in that case we are dealing with a ‘sign-to-sign’ relationship across languages and not with a ‘representation-to-concept’ relationship within one language. Both ‘native’ and ‘international’ terms may consequently be said to possess motivation, but different kinds of motivation referring to different communication strategies.

In the case of Ukrainian, morphological transparency is clearly given priority, but on certain conditions. The motivated alternative should carry the same meaning and should not be morphologically more complex than the synonyms:

“man braucht nach einem Fremdwort nicht zu suchen, wenn in der Muttersprache eine gewohnte und motivierte lexikalische Einheit mit derselben Bedeutung funktioniert. Wenn ein Synonym, welches auf der Basis von den Ressourcen der Muttersprache gebildet ist, nach den Bewertungen der Motiviertheit und der Anzahl von lexikalischen Bestandteilen mit denen eines Internationalismus zusammenfällt, so ist der Gebrauch des ersten Wortes dank dem Verständnis und einer organischen Einverleibung der inneren Wortform eines muttersprachlichen Wortes empfehlenswerter.“

Internationalisms serve as a secondary alternative (“Die terminologischen Lücken sind durch die vorhandenen Internationalismen auszufüllen”), and the request for motivation is asserted on a pragmatic all-things-equal basis: “Im Fall von ungleichen Parametern der Motiviertheit von Synonymen soll ein mehr motiviertes Fachwort bevorzugt werden”.

What is really striking, finally, is the attempt to calculate terms on an experimental and empirical basis, which underlies many of the above results and recommendations:

“Zu diesem Zweck haben wir einige Parameter für die Einschätzung von solchen Entsprechungen auf der Basis der Methodik von binären semantischen Bäumen vorgeschlagen [...] Die Resultate von unseren Experimenten [see above], wie auch die Verallgemeinerung von Haupttendenzen in der Anwendung von terminologischen Internationalismen geben uns unter anderem das Recht, folgende Schlußfolgerungen zu ziehen.“

To most language planners such an approach probably seems radical, depending on the degree of prescriptive authority put behind it. It seems to me, however, that similar parameters might provide a descriptive basis for analysing not psychological acceptability in the process of implementation, but sociolinguistic acceptance as a result of such processes, i.e. a basis for terminological implementation studies.

6 CLOSING REMARKS

As mentioned several times above, within the ‘Eastern’ research communities a complex situation of homogeneity and heterogeneity seems to prevail: homogeneity of theory and common challenges, and heterogeneity which is largely language-specific and also possibly due to different economic orientations of the countries of the region.

The ‘Western’ world, on the other hand, is neither homogeneous nor completely heterogeneous. A number of countries find themselves in a seemingly similar position, striving to prevent the loss of domains to the dominating English language. Among the languages defending their domains against English dominance we find a number of lesser-used languages (e.g. the Nordic ones) and some ‘not-so-lesser-used’ languages such as French or Spanish.

In recent years, we have witnessed a situation in which new terminological approaches occur, approaches which only partly correspond to language borders. These rather complex interrelations cannot be sufficiently grasped by means of simple dichotomies such as ‘Western’ vs. ‘Eastern’ – any such attempt runs the risk of oversimplification.

In his paper, professor Kyyak draws a positive conclusion as to the possibility of learning from other communities’ experiences within terminology:

“In dieser Situation soll man eine Paradoxe berücksichtigen und ausnutzen: die ukrainische Terminologie, welche heute geformt wird, befindet sich in einer vorteilhaften Situation im Vergleich zu anderen Sprachen, weil eine Möglichkeit besteht, die Erfahrung von anderen nationalen Terminologien in Betracht zu ziehen und die Fehler a posteriori zu vermeiden.“

The idea of learning from the mistakes of others may seem a very appealing one that should be elaborated on. But its realism may be disputed, owing to the amount of practical as well as language-specific constraints applying to terminology. Nevertheless, Professor Kyyak’s discussion of Ukrainian term-formation principles generates several questions that might be discussed and perhaps be clarified by joint efforts:

- Is it possible to *calculate* linguistic and sociolinguistic factors of acceptance? If so, to what extent and within what limits?
- Can such calculations be generalised across languages?
- To what extent can principles of term formation, term selection, and recommendations of terms be generalised across languages?

One of the aims of this colloquium was to point out possibilities of cooperation among various language communities. It seems to me that the interface of terminological and general language planning has not been sufficiently examined from a comparative angle. Perhaps

the aim of the colloquium might be attained through a joint project or at least through a section heading at future symposia: “comparative implementation studies”?

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LOOKING BACK TO GET AHEAD: A HISTORICAL VIEW OF TERM FORMATION AND REGULATION. COMMENT ON TERMINOLOGIE IN DER PRAXIS DER UKRAINE T. KYyak

INTRODUCTION

Following decades of what he describes as dominance by the Russian language in specialist communication, Professor Taras Kyyak proposes in his paper on terminology practice in the Ukraine that linguists and domain specialists have now been presented with an excellent opportunity to shape terms, concepts and terminologies in their national language, in accordance with international requirements where feasible. The thrust of Kyyak's paper is critically interventionist, a kind of opposite force to that previously exerted by Russian. It remains to be seen whether that force is equal, and even whether the metaphor and the reality for which it stands is an appropriate one. In order to approach the central theme of Kyyak's paper from a Western perspective, I intend to take a historical route, following a brief outline of the proposed approach.

COMMONALITIES AND DIFFERENCES

The objectives and methods described in Kyyak's paper match closely the conceptions of Eugen Wüster writing between the 1930s and the 1970s in so far as the primary focus is on facilitating professional communication at an expert-expert level through the development of a descriptive and regulatory apparatus for specialist terms in science and technology. The context is, however, different. In the case of the Ukraine, a principal concern is the establishment of specialist vocabularies in Ukrainian as a national language which are well-motivated, consistent with the conventions of the Ukrainian language, and where possible, with an international aspect. Following the half-century of Russian dominance mediated through the political mechanism of the Soviet Union, the starting point for current work seems to be inherently bilingual. This has a number of implications to which I shall return.

The context for Wüster's writings was the awareness of a practising engineer of communicative needs which could, in his view, be better met by a subject-based rather than a form-based approach to the organisation and, where appropriate, the regulation of terminologies, realised through onomasiological methods. Where Wüster seems to have been battling with the alphabet rather than a particular language, in the Ukraine, Russian is the main focus of regulatory attention, albeit within an onomasiological framework very similar to that of Wüster.

From Kyyak's paper we can identify three largely chronological trends in terminology in the Ukraine from the 1920s on:

- five decades of using Russian for scientific and technical communication, during which domain experts became accustomed to using Russian Languages for Special Purposes (LSPs), and Ukrainian terminology was politically suppressed;
- later rather purist post-Soviet attempts by domain experts to develop specialist dictionaries – mainly Russian-Ukrainian – based on neologisms created through loan translation and the revival of archaic Ukrainian words;
- a new planned era of term formation based on terminological principles of form-content transparency (i.e. motivation) and international transparency (‘internationalisms’).

Just as terms share certain characteristics with words – e.g. morphological variation, word formation, semantic shifts, sense relations – so attempts to change vocabularies can be observed in both general and special languages. As is well known, Wüster (1974) argues that a clearer case can be made for linguistic intervention in specialist vocabularies than in the vocabulary of the general language, which he did not advocate. But Kyyak’s Ukrainian example shows us that terminological interventions are also subject to national trends. Linguistic parallels to the Ukrainian situation can be found in some western European countries, but most typically in response to the pervasive influence of English as a global language rather than as a deliberate political policy. Examples can be found in the Norwegian oil industry, French scientific terms, and Modern Greek Information Technology terms, although to my knowledge no campaigns have to date been particularly successful in changing language *use*, at least not in any direct way.

It would be interesting to see specific examples of how the general aim of ‘de-Russification’ in Ukrainian LSPs, a result of political developments, marries with the more particular scientific objective stated by Kyyak of improved terminological motivation, a goal shared by Wüster. In other words, in what kind of balance do ideology and science co-exist, and to what effect? The results of such a study would provide an important sociolinguistic input to issues of term formation, previously elaborated mainly according to conceptual and linguistic criteria.

HISTORICAL PRECEDENTS IN THE WEST

As we have seen, Ukrainian domain experts have been working on Russian-Ukrainian specialist dictionaries – terminologically somewhat misguidedly according to Kyyak – in which Ukrainian terms have been created with the object of establishing ‘truly’ Ukrainian specialist vocabularies to replace those based on loans from Russian (if I understand Kyyak correctly) or in order to fill terminological gaps. Historical parallels can be found in the west which support Kyyak’s reservations about a ‘purist’ approach to terminology planning, to which periods of national resurgence may lead (cf. Barbour & Stevenson 1990:1-54 for links between language and national identity in Germany; Wells 1987:388-420 for a history

of purism and nationalism in Germany in the 19th century and early-mid 20th century). We return to a particular example of an attempt to regulate terminology below.

Since the Ukrainian task as presented by Kyiak is in part an interlingual one, I will consider the problem here from a translation perspective in order to draw attention to historical precedents which may inform current terminological practice. The task of filling terminological lacunae, ideological motivations notwithstanding, is not dissimilar to that of translators, one of whose most enduring problems through the ages has been to find satisfactory ways of filling such gaps in the target language (TL) as part of the knowledge transfer process.

But how is the concept of terminological gap to be understood? Is it a particular word form or expression missing in a target text? Or is it a lexeme missing in one language in a bilingual glossary? Is a gap filled once a translator finds a text-specific solution or only once a term has achieved consensual acceptance in a codified collection? These questions reveal in turn the perspective of the translator and the terminologist. How such gaps have been treated varies accordingly. Kyiak's paper focuses implicitly on the system level of codification, but it will be argued here that the issue of use is equally important.

'Filling' lexical gaps is further complicated by the possibility that the concept which has opened up the gap in the TL may itself not be stable or clear, hence the terminological solutions in both the source language (SL) and the TL are also unlikely to be stable. Over time, attempts may be made through official and professional bodies, particularly in scientific and technical domains, to standardise both concepts and terms on an international basis, but premature action may impede development and oversimplify varying perspectives.

Three broad solutions are described in the historical literature for closing lexical gaps in translation:

- I. borrowing terms from the SL which has set the linguistic precedent,
- II. the creation of neologisms, including loan translation
- III. circumlocution¹.

This tripartite division of solutions used by classical, medieval and Renaissance translators is still familiar to translators – and terminologists – today (e.g. Arntz & Picht 1995:163-4; Stolze 1999:38). Other classifications are possible (e.g. Arntz & Picht 1995:118-27; Chertman 2000:87-116; Newmark 1988:81-91; Picht & Draskau 1985:106-13; Sager 1997; Vermeer 1992:115-7). But while there is some variation, the inventories are very similar.

¹ Wüster (1985:37) underplays the historical possibilities of neology and circumlocution to create new lexical resources: 'Bis zum vorigen Jahrhundert gab es kaum eine andere Möglichkeit, neue Wortelemente zu gewinnen als die Übernahme aus anderen Sprachen oder Sprachzweigen.' [Prior to the current century, practically the only way of creating new morphemes was to borrow them from other languages or branches of other languages.] He claims that in the 20th century the rate at which techniques such as abbreviation and acronymisation were used to produce new words, i.e. neologisms from within the TL, accelerated significantly.

Since borrowing at the lexical level is a common and naturally-occurring phenomenon when languages come into contact, it is no surprise that translators since Cicero, including Quintilian and Pliny the Elder (AD 23-79) (Renner 1989:99) have filled translation gaps by transferring the SL word into the TL, *ubi nostra desunt*². In this way, the current *linguistic* situation in the Ukraine is not exceptional. Borrowing was said, together with loan translation, to be a feature of classical translation *from* Latin into Greek (social and legal terminology such as *πατρικιοζ* for ‘patricius’ i.e. nobleman) and of medieval translation *into* Latin, with scientific terms being imported from Arabic such as *algebra*, *alchemia* and *alkali* (Kelly 1979:135-7).

According to Kelly, borrowing, not loan translation, seems to have been the commonest source of terminology in the medieval period, although not to universal acclaim: so-called ‘inkhorn(e)’ terms imported from other languages came to be criticised, but often for reasons of linguistic purism rather than from a desire for clarity. In an echo of this centuries-old aversion to foreign lexical imports, we can recall that the recent efforts by Ukrainian domain specialists to create terms in their national language have, according to Kyryak, been based principally on neology, either through loan translation or through ‘re-semanticisation’. Indeed, their efforts go beyond the filling of lexical gaps to the replacement of existing Russian loans.

Attempts to ‘purify’ terminologies are fraught with difficulties even at the system level. As the following example from Modern Greek – in reaction to English – illustrates, such attempts may lead to the unwitting use of further loans, themselves the result of a long lexical interlinguistic chain. In our example, the apparently Greek *πλακετα*, used to replace the English-derived *τσιπ* (‘chip’), is itself a loan from the Italian *placchetta* (or less likely the French: *plaque*), in turn from the Latin *planca*, based on the Greek root *πλακ(α)* (a marble slab on a grave)³.

Table 1: Possibilities for filling the lexical gap for ‘microchip’ in Greek

Chronological development	Greek equivalents for <i>microchip</i>
untransliterated loan	microchip
transliterated loan	μικροτσιπ
semantic extension of LGP word	μικροπλακετα

The effect of introducing neologisms in preference to loans is not necessarily that which is expected. One example of frustrated effort is provided by the 19th century German Postmaster-General Heinrich von Stephan, who sought to replace (*Verfremdung*) some 765 loans (often from French) in post office usage by introducing loan translations (e.g. *Fernsprecher* for *Telephon*) and using semantic transfer within German (e.g. extending the 18th century meanings of *Postkarte* – ‘map’ and ‘ticket’ – to cover *Korrespondenzkarte*) (Wells 1987:397-8). The unenvisaged outcome was a kind of functional synonymy in which many

² Renner 1989:99; 100, citing Quintilian: ‘when I want at home’.

³ I am grateful to Polymia Tsagouria, who has very patiently tried to teach me some Modern Greek, for her etymological research.

neologisms now serve only as bureaucratic terms (e.g. *Anschrift*) alongside the popular alternative (e.g. *Adresse*).

The choice for a translator between creating a new term in the TL, borrowing, or calquing a term from the SL, may be influenced by a number of social, political and linguistic factors, such as language prestige, nationalism, and the genealogical relationship between the SL and the TL. Loan translations have, for instance, been particularly popular in preference to borrowings between languages which are not closely related genealogically (cf. Rener 1989:104-7; 111-2). But historical precedents also suggest that the creation of new terms in closely-related languages, such as French based on original Latin, has been more successful than in those which are less closely-related (cf. Delisle & Woodsworth 1995:36-7; Rener 1989:104). Further elaboration of Kyyak's reference to the uncomfortable fit of Russian with its close east Slavonic relation, Ukrainian, in relation to term formation would therefore be welcome.

With the third gap-filling method, namely 'circumlocution' (Rener 1989:108-9: *pluribus verbis*), the notion of single-word 'term' slides into that of phrasal expression with 'no strict form', and equates more to the terminological notion of 'pre-term' (cf. Grinev 1994), which is in itself closely related to descriptive expressions in texts. It therefore seems to me that it would be worth considering how terms are used and evolve naturally in text, as one of the inputs to any attempt to shape terms and terminologies for harmonising purposes. Harnessing such developments may bring benefits through a broadening of the terminological perspective from a synchronic one to a diachronic one. This relates further to the relationship of language use (*parole*) to system (*langue*), which is a perspective currently omitted from Kyyak's set of proposals.

A diachronic perspective also draws our attention to historical precedents which demonstrate that borrowings may be subsequently replaced, anticipating the situation in the Ukraine. Early Arabic translators, for instance, frequently used transliterated loans (from the Greek), which were later replaced with neologisms more in keeping with Arabic morphology when the translations were revised some 100 or so years later (Delisle & Woodsworth 1995:114). However, Kyyak's prognosis for the survival and use of recent Ukrainian neologisms coined by domain experts in the form of loan translations or re-semanticisations is pessimistic. His solution is to involve linguists in the process of term formation and to develop a set of principles which would result in better motivated terms. But I return here to the issue of *text* creation: it is in text that terms are used and where lexical gaps cannot exist. What are the mechanisms by which the terms agreed by terminologists/linguists and domain experts would permeate into the use of text creators, including technical writers and translators, as well as domain experts?

THE NATURE OF TERMINOLOGIES AND HARMONISATION

Kyyak's paper assumes that international harmonisation is both desirable and feasible. In comparing the current situation in the Ukraine and Ukrainian with that in other countries and languages in which terms and their meanings have already been 'fixed', Kyyak views

the Ukrainian opportunity with optimism. It is characteristic of a standardising view that terminologies – in the sense of regulatory publications – ‘fix’ meaning and forms, at least for a given period of time, as the result of consensus in international or national committees and professional associations. The parallel with the standardisation of objects is clear, but is it justified? One answer to that question – whether with respect to certain cultures/languages which Kyyak regards as having achieved this objective, or with respect to cultures/languages where developments are still afoot, such as Ukraine/Ukrainian – could be provided by empirical studies which investigate the application of terminological standards. To my knowledge, such studies do not exist. This would therefore be a fruitful area of joint research: to investigate the application of terminological standards in developed and developing specialist vocabularies with respect to various levels and types of LSP communication. This is an aspect of terminological planning which is open for further study.

The results of any empirical studies notwithstanding, there are a number of questions which arise in connection with assumptions about terminology harmonisation at national and international levels. These include:

- the incompatibility of some national object standards (cf. Schmitt 1986);
- the nature of meaning as negotiable, particularly in certain types of communication such as expert-to-expert text genres, by comparison with other genres such as safety instructions, patient notes accompanying medication, user manuals, and so on, where information delivery not creativity is the primary purpose;
- domain-specific differences with respect to the nature, creation and synchronic stability of meaning; in such a view, variation is both natural and creative (cf. Temmerman 2000).

One practical example of harmonisation – of both forms and meanings – is provided by the automotive industry. Having long maintained that their market position and corporate identity is closely related to a choice of terms which uniquely characterises their product and company brand image, some automotive companies are coming to the realisation that authoring and translation costs could be considerably reduced by harmonising automotive terminology. One example where terminological collaboration has been discussed is Volvo and Daimler-Benz⁴.

A large-scale project is now also well advanced at Xerox GKLS⁵ to harmonise automotive terminology with “Global English” – as defined by the customer – as the pivot SL and German, Japanese and Swedish as the other SLs. The initial aim has been to achieve exact equivalence between all four SLs e.g. by elimination of synonymy, in consultation with the client, an automotive company, across all sub-domains. The target languages number 18, and the aim is to eventually cover all document types from workshop literature and diagnos-

⁴ I am grateful to Geoffrey Kingscott for this information and the information on the J2450 Working Party of the (US) Society of Automotive Engineers.

⁵ I am grateful to Raphael Prono of Xerox GKLS for briefing me on this on-going project.

tics to labour time guides and training documents. Furthermore, the J2450 Working Party of the (US) Society of Automotive Engineers is now working with colleagues in Europe to harmonise the quality evaluation of translations of automotive service literature, including terminology checking.

What do we conclude from this? International and even national harmonisation of terminologies may in the worst case prove to be a challenge too far; in a more favourable scenario, it may prove to be simply too undifferentiated according to genre, level of communication and domain. More realistic prospects for harmonisation exist where a need is perceived – in the case of the automotive industry, a commercial one – and acted on at a relatively local level. This is because those who employ the *users* of that terminology have some authority and hence exercise control, and because the relevant communicative situations are well-defined according to an established inventory of genres such as customer manuals, workshop manuals, marketing brochures, training materials, internal reports, and so on.

CONCLUSION

A review of terminological developments in the West since classical times reveals some similarities with the current situation in the Ukraine which suggest that language, and in particular special-language vocabularies, may not be so amenable to regulation as Professor Kyyak's paper suggests, even with a high level of awareness contributed by linguists/terminologists. Furthermore, in the absence of empirical studies, it is not at all clear that the Western countries have 'been there, done that, got the T-shirt' with respect to 'fixing' the terminologies of certain disciplines. This reveals an essentially static approach to the behaviour of terms, and a faith in the regulatory power of terminological standards (*langue*) which simplifies the multi-layered nature of LSP communication (*parole*) and its creative nature. It remains to be demonstrated, for instance, just what the relationship is between terms as prescribed in terminological standards and their use, including the scope, context and type of variation which may ensue, regardless of the theoretical foundations which underlie such standards.

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TERMINOLOGICAL DICTIONARIES AND DATA BANKS (PRESENT STATE AND PERSPECTIVES)

Today information has become the main resource which practically determines the possibilities of society for further development. This calls for new technologies and special intellectual instruments. In this respect, it is useless to speak of information science without terminology, which is regarded as a special kind of intellectual product widely used in science, new information technologies and intellectual systems. But if we consider terminology an intellectual product, it is necessary to take into consideration the quality and reliability of that product as well as its particular properties.

This is the reason why this presentation has two parts. In the first part we shall touch upon traditional printed terminological dictionaries, as well as upon the methods and regulations according to which they are compiled at the Omsk Terminology Centre (OmTERM). In the second part we shall dwell on the computerised terminological databases which are developed and used by the All-Russia Scientific-Research Institute of Classification, Terminology and Information on Standardization and Quality (VNIKI) and the Committee of Science and technology Terminology of the Academy of Sciences of Russia (KNT).

I.

Speaking about terminography, one always thinks that this branch of linguistic science deals with compiling terminological dictionaries, but very seldom one realises what great efforts the compilers make to find the sources of the necessary terms, to correlate each of them with relevant facts of science and technology, to carry out the excerption of terms, to work out the structure of the article for each of them and especially for those which play the role of term-building units, to find the adequate equivalents, to interpret new terms, and above all to consult with specialists in the sphere of science and technology for which the terminological dictionary is being compiled. This very hard and thorough work is too time-consuming for the required specialized terminological dictionaries to be expected to be published after a short time. Moreover, it should be founded on the theoretical bases and principles of terminography science, which is closely connected with terminology science.

Though the first special dictionary of terms for natural phenomena was compiled in Russia by K.A. Kondratovich and appeared in 1780, the systematic work of compiling terminological dictionaries began in the 30s of the last century, when the first standard of aerodynamic

terms was worked out by the Soviet scholar D.S. Lotte and academician S.A. Chaplgin. In 1934 and 1938, the first and second editions appeared of an English-Russian Technical Dictionary compiled by A.E. Chernuhin, who later became widely known for his English-Russian Polytechnic Dictionary, published in 1962, the second edition of which was the best-seller among American specialists at the end of the 70s. Though the first dictionary with the same title was compiled by L.O. Belkind in 1946, the work of the very talented engineer A.E. Chernuhin, working as a compiler and editor of English-Russian and Russian-English Polytechnic dictionaries, was a major contribution to Soviet-Russian terminography.

Beginning in the 50s, the attention of specialists and terminologists was concentrated on compiling terminological dictionaries on different branches of science & technology, including newly-developed and developing ones. Thus a whole series of bilingual dictionaries was published: on rocket technology, aviation and aerospace terms (all compiled by A.M. Murashkevich in 1958, 1971 and 1972, respectively), on aeroengine terms (compiled by L.B. Tkacheva in 1963), on aerospace materials terms (compiled by I.F. Borisov in 1972), on machine building terms (compiled by V.V. Shvartz in 1983), on nuclear explosions terms (compiled by O.K. Petrenko in 1977), on television terms (compiled by I.S. Nankelson and V.A. Hleborodov in 1985), and many others.

The major contribution to printed terminography work was made by the VNIKI, KNT and VCP (the All-Union Centre of Translation), which was very productive from the 60s to the 80s, in which period they prepared and published terminological standards of Russian and of the languages of the socialist countries (VNIKI), collections of terms (KNT), and special notebooks of new terms under the editorship of Yu.N. Marchuk and I.I. Ubin (VCP), the number of which was more than a hundred.

According to the data presented by S.V. Grinev in his text-book "Introduction to Terminography" (1995), during the period from 1950 to 1979 more than 2,000 terminological standards and more than 2500 normative documents, containing more than 200,000 terms, appeared in the USSR together with some hundreds of taxonomies and classifications, a great number of educational terminological dictionaries, and more than 700 translators' and explanatory dictionaries.

In their book "Modern State of Science & Technology Lexicography" (1986), A.Ya. Shaikevich and M.B. Bergelson stated that over the same period, the Soviet Union occupied the third place in the world (after the USA and the FRG) in terms of the overall number of dictionaries published, including unilingual and multilingual ones; in terms of the number of bilingual dictionaries, it occupied the first place. Moreover, 1685 dictionaries, encyclopaedias and handbooks were printed, including a special lexicon of the Russian language.

One cannot but appreciate the very active work in the sphere of practical terminography carried out by the terminologists in Leningrad (under the scientific supervision of A.S. Gerd), by those in Gorky (under the supervision of B.N. Golovin and R.Yu. Kobrin), by those in Voronezh (under the supervision of E.S. Anushkin), and by those in Omsk (under the su-

pervision of L.B. Tkacheva). They collected excerpts of terms and subsequently published dictionaries both in Russian and in foreign languages. Of no less importance was the systematisation and unification of national terminology carried out in the former Soviet republics of Latvia, Ukraine, Belorussia, Armenia, Azerbaijan, and Kazakhstan.

In the 90s of the XXth century and the beginning of the XXIst century, terminographic work has been concentrated on compiling dictionaries in the branches of science and technology connected with the changes which have occurred in Russia's political, economic, industrial, scientific, and cultural life. But this process was neither planned nor regulated. This is the reason why it makes sense to comment only on separate editions of terminological dictionaries worked out by the well-known publishing-house "Russian Language" and by some private publishing houses.

As for the terminological schools mentioned above, they try to continue their terminographic work paying special attention to the thematics and structure of the dictionaries being compiled as well as to their contents. But the most productive activity was that carried out by the Omsk Terminology Centre, the main task of which was the working out of a theoretical foundation for terminographic work in order to find the optimal way of compiling special dictionaries for the branches of science and technology with the most pressing needs. Having investigated all the methods and principles for the compilation of terminological dictionaries and having analysed the needs of specialists as regards the looking up of concrete concepts and adequate equivalents of the necessary terms, the members of the Omsk Terminology Centre chose their own approach to the compilation of special dictionaries, of which the most important recommendations are:

1. to correlate the terms with the corresponding science and technology facts in order to be able to ascertain the meanings of the term as well as the notions, objects or phenomena it denotes, thus using a socio-linguistic approach to terminographic work, which assists terminographers in avoiding mistakes in presenting the notions denoted by the term and in finding the adequate equivalents;
2. to include into the terminological dictionaries only terms which are used in the specific branch of science and technology, i.e. intra-branch terms;
3. to pay special attention to recently developed terms and to find adequate Russian equivalents in order to avoid incorrect use of the terms in professional communication;
4. to include only standardized terms, never slang or dialect;
5. to avoid synonymic terms from different language variants;
6. to provide the full form of all the shortenings used in branch terminology.

On the basis of these recommendations, 74 bilingual dictionaries were published of intra-branch terms within the most up-to-date fields of science and technology, such as management, marketing, banking and financial activity, flying equipment, tank design, rocket engines, politology, religion, computer and information science, the Internet, advertising, social work, customs houses, foreign trade, the struggle against crime, etc. The volume of those dictionaries ranges from 2,500 to 6,000 terminological units. They are all in great demand, not only in Russia but also abroad (see Annex 1).

This practical work in terminography was based on fundamental theoretical investigations carried out in the field of terminology and was of very great importance to the further development of all branches of knowledge. But terminography as a science developed in Russia has its own history with problems which have been the subject of many scientific papers. Theoretical investigations of terminography with implications for the years to come began in the 30s with the regulations for the standardization of terminography proposed by D.S. Lotte (1932), L.V. Zsherba (1935), and E.K. Drezen (1936).

The most intensive scientific research work was carried out from the 60 to the 90s, a period in which progress in science and technology as well as the growing number of foreign economic contacts led to a demand for systematisation of terminology as a source of information. It was precisely at that time that the most pressing problems of terminography were singled out in the scientific publications of Soviet and Russian scholars. They were:

1. the unification of terminology,
2. the standardization of terms,
3. the definition and description of terms in dictionaries,
4. the principles of compiling special dictionaries,
5. the semantic aspects of terms in dictionaries,
6. the principles of selecting terms for compiling dictionaries,
7. the gnoseological aspects of dictionaries,
8. the structure of terminological dictionaries,
9. types of dictionaries,
10. terminography as a science,
11. internationalization of terms,
12. the interaction between terminography and sociolinguistics (see Annex 2).

The establishment of terminography science was marked by the publication of two specialized text-books: "Bases of Terminography" by Yu.N. Marchuk and "Introduction to Terminography" by S.V. Grinev, which appeared in the first half of the 90s and were both recommended to students, post-graduates, teachers, and specialists. It is also worth mentioning the importance of "Historical Systematized Dictionary of Terminology Study Terms", published by S.V. Grinev in 1998.

In addition, it is necessary to mention some special scientific conferences devoted to terminographic problems which took place in the same period. They were: "General and Termi-

nographic Lexicography" in Baku (1978), "Main Trends in the Development and Improvement of the Work on Standardization of Science and Technology Terminology" in Moscow (1983, 1986), "Terminological System as an Object of Lexicography" in Moscow (1989), and "Theory and Practice of Science and technology Lexicography" in Moscow (1988). At the beginning of the XXIst century, two more international conferences were held at which the problems of terminology were discussed from the point of view of further development of science and technology in the era of globalisation (Moscow 2000, Omsk 2002).

Summing up the perspectives for further development of terminography work with the aim of satisfying the huge demand for special dictionaries, the terminologists of Russia and other countries should unite their efforts in order to intensify the process of compiling:

1. bilingual dictionaries of intra-branch terms;
2. multilingual dictionaries within the most up-to-date branches of science and technology;
3. dictionaries of international terms.

The reason for this is that those are the types of dictionaries needed now since specialists would like to broaden their professional contacts in order to promote their ideas and projects.

II.

Today it is quite clear that computerised terminology dictionaries have many advantages over traditional paper dictionaries. This is even more true of terminology data banks, which can and should be used in all spheres of activity.

Below we should like to give an account of two terminological data banks available within two terminological bodies of Russia – one in the All-Russia Scientific-Research Institute of Classification, Terminology and Information on Standardization and Quality (VNIKI), and the other in the Committee for Scientific Terminology in Fundamental Research (KNT).

II.1.

VNIKI is an official administrative body responsible for the promotion of standards and regulations in industry and technology. According to preliminary estimates, within a transitional period of 7 years the number of technical regulations developed will increase from 1,000 to 2,000, including terminology, which corresponds to approximately 22,000 national standards. This task can not be performed without terminological data banks.

In addition, a terminological standard may be regarded as a dynamic lexical stratum which develops and changes with the development of science and technology during the process of knowledge acquisition. It should be noted that terminological standards are not isolated

from each other, but are interrelated and interlocking. Thus standardized terminology as a whole may be regarded as a large, complex, structured system developed by various groups of experts, a fact which sometimes leads to inconsistency of terminology among different standards. This fact was stressed by TC 37 at its regular meeting in Vienna on 2002-08-23 (see Annex 3). The best means of overcoming this problem is harmonisation of terminology, which in turn cannot be accomplished without terminological data banks.

The existence of a body of systematized terminology, contained in the terminological data bank "ROS-TERM" maintained by the VNIKI, means that conditions are favourable with regard to the use of systematic terminology as a terminological support for any intellectual system that might be created in various branches of industry and economy, as well as for standard developers.

ROSTERM, the national terminological data bank of Russia, is the largest data bank of standardized terminology in Russia and one of the largest terminology data banks of the world. It contains approximately 150,000 terminological entries, which comprise terms and their definitions in Russian in addition to term equivalents in English, German, and French, excerpted from more than 4,000 documents, including about 750 ISO and IEC standards and more than 3,100 Russian national standards as well as vocabularies issued by the UNESCO, ICAO, ILO, etc.

The range of ROSTERM use is very broad. One of its main objectives is providing assistance for the creation, distribution, and exchange of industrial and economic information. This is implemented in the following ways:

1. terminological expertise found in normative documents and classifications of technical and economic information, which form the main part of the information input flow for industrial and economic data bases;
2. scientific and technical translation of normative and other documents, classifications of technical and economic information, etc. This applies to documents, based on systematised lists of different objects, which may be translated at a relatively high level only by using terminological data bases. The use of ROSTERM for translating the "International Classification of Standards" from English into Russian has confirmed this fact;
3. development of specialized vocabularies and dictionaries; for example, various vocabularies and dictionaries of standardized terminology such as "Metallurgy", "Ecology and Industrial Wastes", "Occupational Safety and Health", "Information Science", "Environment Protection", "Banking", "Electronics and Communication", "Nuclear Engineering", etc. are used in the popular Russian computer aided translation system "PROMT".

A data bank on 31 Russian classifications in force, maintained by the VNIKI, covers main types of technical, economic, and social information, such as types of economic activities, products and services, units of measurement, currency etc. According to Federal Law ("About Technical Regulation in the Russian Federation"), the application of these classifi-

cations is **mandatory** for the creation of state information systems and information resources as well as for inter-branch information exchange. The basic requirements to be met by classifications are oriented towards the market economy and towards the harmonisation of Russian classifications with international and regional ones (UN, EC, ILO, ISO) (see Annex 4).

II.2.

The KNT is one of the leading scientific organisations in Russia, working in the fields of basic terminological research, normative terminology in various knowledge areas, lexicography, terminological expertise, applied terminology, etc. Along with these traditional fields, the KNT is now actively developing modern computer-based terminology information systems.

Issues pertaining to knowledge engineering, artificial intelligence, information processing, and data communications in relation to terminology are considered in close co-operation with other institutes of the Academy, in particular with the Institute for Information Transmission Problems.

The KNT organizes the work of dozens of special problem teams dealing with the terminology of individual fields, teams in which hundreds of the most competent experts of the fields in question take part. The current lines of research of the KNT include the following:

1. development of terminology support for fundamental sciences;
2. semantic theory of terminology;
3. terminology processing for knowledge representation;
4. conceptual systems of terminology;
5. terminological dictionaries and thesauri;
6. terminology data banks;
7. development of a computer-based system, "Assistant of Terminologists", which will comprise, in addition to traditional term banks, banks of nonverbal representations of concepts as well as advanced user-friendly interface software .

The KNT is also engaged in developing a modern computer-based terminology knowledge base. The terminology knowledge base "Scientific Terminology" which is being developed by the KNT will absorb as much as possible of the KNT's experience in creating normative terminology, i.e. the KNT's theoretical and methodological heritage (see Annex 5).

It also will serve as a terminology knowledge base containing all the information which has been presented by the KNT in the form of contributions to normative terminology for many areas of knowledge. In their most general form, the scientific problems to be solved in this area may be formulated by means of the following questions:

- a) what part of scientific knowledge may be regarded as the set of its main, basic statements?;

- b) in what way may the answer to the first question be substantiated and formulated on the basis of such text analysis procedures as will become feasible in the nearest future?;
- c) what formulation of statements, representing the basic knowledge of a subject field, is accepted and why?

The main idea behind the terminology knowledge base as opposed to the one behind the terminology data bank is that using a well-defined terminology system, we may structure the fundamental information and knowledge of a given subject field (annex 5).

A not inconsiderable share of the basic knowledge of any subject area may be represented by the conceptual relations among the terms of the area in question. Such relations are represented in the most accurate and complete fashion by term definitions, which means that the system of term definitions contains a considerable part of the knowledge of the field. Therefore, a proper analysis of term definitions makes it possible to extract basic statements of the subject area in question. Genus/species analysis of concepts plays a central role in the analysis since on the one hand, it provides a picture of the conceptual genus/species hierarchy of the subject field and, on the other hand, it allows different statements and claims to be inferred according to the rule of “feature inheritance” from any genus concept to all its species concepts.

The Computer Information System of Scientific Terminology (AISNT) is a Terminology Data Bank with the unique features of a Terminology Knowledge Base. It contains structured information on terminology from different dictionaries, encyclopaedias and reference books in Russian and English, and it enables its user to view, correct, renew, and expand available data banks as well as to create new ones. By means of the AISNT, the user can conduct subtle and manifold search operations according to various criteria and combinations thereof; and it enables the user to operate on files (to delete and insert records, to delete data banks, to load new data banks, to substitute one data bank for another, etc.).

Some additional AISNT functions, based on term definition analysis, enable the user to get and graphically present the conceptual structure of the terminology of a given domain, which means that one may see each terminological concept together with the other concept with which it is most closely related at the same conceptual level in the hierarchy of concepts, see graphical representations of the genus-species and part-whole structures holding among terminological concepts of the domain, analyse the knowledge structure, obtain diversified lists of terms and term collocations denoting specific concepts, and make any relevant inferences. The AISNT has an advanced format of approximately 40 data categories, including terms and their definitions in Russian, and their equivalents in English, German and French.

The AISNT demonstration version comprises approximately 1,000 terminological entries and contains information from the following sources:

- 1) Robotics. Terms. //Collections of scientific and normative terminology (in Russian);

- 2) Hydromechanics. Terms. Letterings. //Collections of scientific and normative terminology (in Russian);
- 3) Samburova G.G. Terminologist's Dictionary: Basic Concepts and Terms in Theory and Practice of Terminology Ordering //Collections of scientific and normative terminology (in Russian);
- 4) Glossary of Heat Treatment /Swedish Centre of Technical Terminology. TNC 57E. – Stockholm: TNC, 1974; 5.
- 5) Personal Communications Terminology /American National Standard for Telecommunications. – N.Y.: ANSI, 1996.

The AISNT demonstration version implements all functions, including SEARCH procedures according to criteria chosen by the user, but in order to eliminate the risk of unauthorised access, it admits no changes of the Data Base.

The AISNT full version comprises approximately 3,000 terminological entries from 12 subject fields and admits any changes. All changes are effected by the programme as soon as any of the options, dependent on the Data Base, is implemented: data retrieval, analysis of terminology, analysis of knowledge structure, calculating levels of terminological conceptual structure, etc.

Annex 1

OMSK TERMINOLOGY CENTRE BILINGUAL DICTIONARIES OF INTRA-BRANCH TERMS

THE ENGLISH-RUSSIAN, GERMAN-RUSSIAN AND FRENCH-RUSSIAN DICTIONARIES ARE INTENDED FOR STUDENTS, POST-GRADUATES, SCIENTISTS, SPECIALISTS, AND BUSINESSMEN COOPERATING WITH RUSSIA.

THE DICTIONARIES ARE COMPILED ON THE BASIS OF WORLD SCIENCE AND TECHNOLOGY LITERATURE AND DOCUMENTS PUBLISHED FOR THE LAST DECADE. THEY INCLUDE FROM 2,000 TO 6,000 INTRA-BRANCH TERMS WITHIN THE MOST CURRENT FIELDS OF SCIENCE AND TECHNOLOGY:

- | | |
|--|--|
| 1. ACCOUNTING (E -R) | 38. INTERNET (E -R) |
| 2. ACOUSTOELECTRONICS (E -R) | 39. INTERNET SLANG (E -R) |
| 3. ADVERTIZING (E -R) | 40. LEGAL ACTIVITY (E -R) |
| 4. AEROFOTOGEODEZY (E-R) | 41. JOINT VENTURES (E -R) |
| 5. AIDS (E -R) | 42. MACRO- AND MICROECONOMICS (E -R) |
| 6. AIR VEHICLE (E -R) | 43. MANAGEMENT (E -R) |
| 7. ANATOMY OF DOMESTIC ANIMALS (E-R) | 44. MARKETING (E -R) |
| 8. AUTOMOBILE BUILDING (F-E, E-F, E-G, E-R) | 45. MATHEMATICS (E -R) |
| 9. AUTOTRANSPORT (E-R) | 46. METROLOGY (E -R) |
| 10. BANK AND FINANCING ACTIVITY (E -R) | 47. MILK & MILK PRODUCTS TECHNOLOGY, (G-R) |
| 11. BANK BUSINESS(G -R) | 48. MOBIL SYSTEM OF COMMUNICATION (E -R) |
| 12. COLD AND CRYOGENIC TECHNOLOGY (E -R) | 49. MONTAGE EQUIPMENT (G-R) |
| 13. COMMERCIAL KNOWLEDGE OF COMMODITIES (E -R) | 50. NARCOMANIA (E-R) |
| 14. COMPUTER INFORMATICS (E -R) | 51. NEPHROLOGY (E-R) |
| 15. COMPUTERS (E -R) | 52. OIL CHEMISTRY (E -R) |
| 16. CRYOGENIC TECHNOLOGY (E -R, G -R) | 53. POLYGRAPHY (E -R) |
| 17. CRYOMEDICINE AND CRYOBIOLOGY (E -R) | 54. POLITOLOGY (E -R) |
| 18. CUSTOM- HOUSE (E -R) | 55. PROGRAMMING (E -R) |
| 19. ECOLOGY (E -R) | 56. RADIOTECHNOLOGY INSTRUMENTS & SYSTEMS (E -R) |
| 20. ECONOMIC TERMS (E -R) | 57. RELIGION STUDY (E -R) |
| 21. ELECTRIC ENGINEERING (E - R) | 58. ROCKET ENGINES (E -R) |
| 22. ENGLISH ECONOMIC TERMS IN | 59. SAFETY OF ROAD MOVEMENT (G- |

GERMAN (G-E-R)	R)
23. ENGLISH SHORTENINGS IN SPACE TECHNOLOGY (E-R)	60. SANITARY AND HYGIENE (E -R)
24. EPIZOTOLOGY (E -R)	61 SLANG (E -R)
25. EPONIMIC TERMS (E -R)	62. SIBERIAN MARATHON (E -R)
26. FLYING APPARATUS (E-R)	63. SHORTENINGS IN TELEXES, TELEGRAMS AND LETTERS (E -R)
27. FLEXIBLE AUTOMATIC SYSTEMS (G -R)	64. SOCIAL WORK (E -R)
28. FOREIGN TRADE (E -R)	65. STATISTICS (E -R)
29. HERMENEUTICS (E -R)	66. STOCK EXCHANGE AND BARGAINING (E-R)
30. HEURISTICS FOR COMPUTERS (E -R)	67. STOMATOLOGY (F-R)
31. HYDROMELIORATION (E -R)	68. STRUGGLE AGAINST CRIMINALITY (E -R) (G -R)
32. HOTEL (E -R, R-E)	69. SPACE MEDICINE (E -R)
33. HYBRID TERMS (E -R)	70. TANK DESIGN (E -R)
34. INFLATION (E -R)	71. TAXES (E -R)
35. INSURANCE (E -R)	72. TECHNOLOGY AND CONSTRUCTION OF GARMENTS (E -R)
36. INFORMATICS (E -R)	73. TRAFFIC SAFETY (E-R)
37. INFORMATION AND TELECOMMUNICATION (E-R)	74. TRANSPORTATION AND PACKING (E -R)

The dictionaries are registered in the International Specialized Terminology Organization (ISTO) of which OmTERM is a member, as well as in the Asian Continental Secretariat, whose terminological work is coordinated by OmTERM.

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Annex 3

Resolutions

adopted at the ISO/TC 37/SC 1 Plenary Meeting in Vienna 2002-08-23

Resolution 02-1

SC 1 resolves to change the title of WG 2 from Vocabulary of Terminology to Harmonisation of Terminology. The new scope of this WG is Principles and methods of harmonisation of concepts, terms and concept systems including harmonisation of terminology in TC 37 technical documents. Maria Pozzi (Mexico) is appointed the convenor of WG 2.

WG 2 has the following projects on its work program:

860 Harmonisation of concepts and terms

Harmonisation of terminology in TC 37 technical documents

Annex 4

International (regional) classifications and standards used in Russian classifications

Russian classifications	International (regional) classifications and standards
Russian Classification for Standards	International Classification for Standards – ICS
Russian Classification of Economic Activities and Products	International Standard Industrial Classification of Economic Activities - ISIC; Central Product Classification – CPC
Russian Classification of Professions by Education	International Standard Classification of Education - ISCED – 97
Russian Classification of Occupations	International Standard Classification of Occupations – ISCO
Russian Classification of Fixed Assets	Standards UN of System of National Accounts; International Standard Industrial Classification of Economic Activities - ISIC; Central Product Classification – CPC
Russian Classification of Currencies	International Standard ISO 4217:2001 “Codes for the Representation of Currencies and Funds”
Russian Classification of Units of Measurement	Economic Commission for Europe (ECE) UN “Codes for Units of Measurement used International Commerce”; International Standard ISO 31-0:1992 “Quantities and Units. Part 0. General Principles”; International Standard ISO 1000:1992 “SI Units and Recommendations for Use of their Multiples and of Certain other Units”
Russian Classification of Professions of Higher Scientific Qualification	International Standard Classification of Education - ISCED – 97
Russian Classification of Initial Professional Education	International Standard Classification of Education - ISCED – 97
Russian Classification of Countries of the World	International Standard ISO 3166-1:1997 “Codes for the Representation of Names of Countries and their Subdivisions”
Russian Classification of Economic Activities	Statistical Classification of Economic Activities in the European Community

Annex 5

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TERMINOLOGICAL DICTIONARIES AND DATA BANKS; COMMENTS ON THE PAPER OF L. B. TKACHEVA AND S. D. SHELOV

INTRODUCTION

The paper of L. B. Tkacheva and S. D. Shelov consists of two main parts. Part one describes in detail the compilation and types of traditional terminological dictionaries and standards in Russia whereas part two concentrates on terminological data banks with a specific focus on knowledge bases in that geographic area. This comment attempts to reflect these topics in Western Europe with a special emphasis on the German speaking area.

TERMINOLOGICAL DICTIONARIES AND STANDARDIZATION

Although some rare early approaches had been developed before, the main period of producing terminological dictionaries started at the beginning of the last century. Technical innovations and progress in the field of mechanical and electrical engineering led to a huge increase in technical terms which had to be made available to experts, technical authors, and translators.

Alfred Schlomann, a German engineer, elaborated and published systematically arranged technical dictionaries during the first decades of the 20th century. Each dictionary covered the different concepts of a specific domain and listed the corresponding terms in 6 languages. Between 1906 and 1928, 16 volumes of his “illustrated technical dictionaries in 6 languages” („Illustrierte Technische Wörterbücher in 6 Sprachen“) were published, each volume containing between 400 and 2,000 pages (see fig. 1 and 2).

At the same time, national and international standards organisations were founded to support technical cooperation by defining and specifying properties of parts and tools. Soon after the establishment of technical committees for standardization, terminological subcommittees were founded to define and standardize the technical vocabulary of the different domains. This process started within the German Standards Body DNA (Deutscher Normenausschuss), the predecessor of DIN (Deutsches Institut für Normung), which established the first terminological subcommittee in 1917. Very soon after starting with the practical terminological work it turned out that there was a strong need for the establishment of general principles and methods for terminology work.















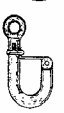



In 1931, the Austrian engineer Eugen Wüster published a dissertation with the title “Internationale Sprachnormung in der Technik, besonders in der Elektrotechnik“. This piece of

work was translated into several languages and in 1936 led to the foundation of a technical committee (ISA/TC37, later ISO/TC37) dealing with terminological principles.

To improve the principles of terminology work for the creation of a basic standard, Wüster elaborated a systematic terminological dictionary with the title “The Machine Tool”, published in 1968 (see fig. 3).



(Fig. 1: Title page and table of content of one of Schloemann’s dictionaries)

<p>1 Kettenhaken (m) chain hook crochet (m) de chaîne</p>		<p>цепной крючок (m) gancio (m) da catena gancho (m) para cadena</p>	<p>Klauehaken (m) claw-hook crochet (m) à griffes</p>		<p>пальцеобразный крючок (m) gancio (m) a griffa gancho (m) de garras ó garfios</p>
<p>2 Seilhaken (m) rope hook crochet (m) de câble</p>		<p>канатный крючок (m) gancio (m) da fune gancho (m) para cable</p>	<p>Zughaken (m) draw bar hook crochet (m) de traction ou d'attelage</p>		<p>тазовый крючок (m) gancio (m) di trazione gancho (m) de tracción</p>
<p>3 Doppelhaken (m), Widderkopf (m) double ramshorn or hook crochet (m) double</p>		<p>двойной крючок (m) gancio (m) doppio gancho (m) doble</p>	<p>leerer oder unbelasteter Haken (m) empty hook crochet (m) à vide</p>		<p>пустой или ненагру- женный крючок (m) gancio (m) non caricato gancho (m) no cargado</p>
<p>4 Ösenhaken (m) eye hook crochet (m) à œillet</p>		<p>крючок (m) сь ушкомъ griffa (f) adocchiello gancho (m) de ojal</p>	<p>die Last an den Haken hängen (v) oder in den Haken einhängen (v), die Last einhängen (v) to put the load on the hook</p>		<p>принять или подве- сить грузъ къ крюку sospender (v) od attac- care (v) il carico al gancho</p>
<p>5 Wirbelhaken (m) shackle or swivel hook crochet (m) à tourillon, émerillon (m)</p>		<p>вертлжанный крючок (m) griffa (f) ó gancio (m) giratorio gancho (m) giratorio</p>	<p>accrocher (v) la charge, suspendre (v) ou amar- rer (v) la charge au crochet</p>		<p>петля (f); грузовой бутель (m) occhiello (m) triangolare aspa (f), ojuelo (m)</p>
<p>6 S-Haken (m) S-hook crochet (m) en S</p>		<p>S-образный крючок (m) gancio (m) in forma di S gancho (m) en S</p>	<p>Schleife (f), Lastbügel (m) loop, triangular lifting eye boucle (f) ou œillet (m) de suspension</p>		<p>дужка (f) или ушко (n) крюка anello (m) porta-gancio eslabón (m) giratorio</p>
<p>7 Karabinerhaken (m) carbine crochet (m) porte-mous- queton</p>		<p>крючок (m) сь замкомъ; крючок сь караби- номъ gancio (m) porta-cara- bina gancho (m) de mosque- tón ó mosquetero</p>	<p>Schäkel (n) shackle maillon (m) d'émerillon</p>		<p>D-образная дужка (f) maniglia (f) in forma di D grillete (m) en forma de D</p>
<p>8 Sicherheitshaken (m) safety hook crochet (m) de sûreté</p>		<p>предохранительный крючок (m) gancio (m) di sicurezza gancho (m) de seguridad</p>	<p>Kuhmaul (n) D-shackle manille (f) en forme de D</p>		<p>ушко (n); петля (f) occhiello (m) grillete (m), ojal (m)</p>
			<p>Öse (f) eye œillet (m)</p>		<p>D-образная дужка (f) maniglia (f) in forma di D grillete (m) en forma de D</p>
			<p>Anschlagkette (f), (An- schlagseil (n)), [Last-] Schlingkette (f), Schlenkette (f) sling chain (sling rope) chaîne (f) (câble (m)) à deux bouts tendus</p>		<p>грузовая цепь (f), (гру- зовой канатъ (m)) catena (f) ó fune (f) da imbracatura cadena (f) de dos ra- males</p>

(Fig. 2: Sample dictionary page of one of Schlomann's dictionaries)

The Machine Tool

An Interlingual Dictionary of Basic Concepts

comprising

An Alphabetical Dictionary and
A Classified Vocabulary
with Definitions and Illustrations

English-French Master Volume

Prepared under the auspices of
The United Nations
Economic Commission for Europe
and under the direction of

Eugen Wüster



TECHNICAL PRESS
LONDON

[8.10]

Vocabulary *Vocabulaire*

UDC 531.2/.4 STATICS AND DYNAMICS

CDU 531.2/.4 STATIQUE ET DYNAMIQUE

34

UDC 531.211

mechanical force IEC; **force** BS, ISO; **power**²: Any physical cause capable of modifying the condition of movement or of rest of a body, or of deforming it IEC.

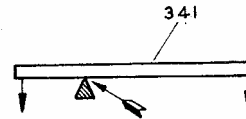
force mécanique IEC, NF; **force** IEC, ISO, NF: Toute cause physique capable de modifier les conditions de mouvement ou de repos d'un corps, ou d'y produire une déformation IEC, NF.

35

UDC 531.211

fulcrum; pivot² (point): The point of support of a lever (341).

point d'appui (d'un levier); **centre de résistance**; **centre de rotation** (d'un levier); **point de levier**: Point supportant un levier (341).

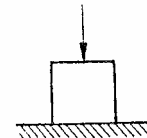


36

UDC 531.223

compressive force; pushing force; pressure¹; **total pressure** BS: Any force (34) tending to compress a body.

force de (com)pression; pression¹: Force (34) qui tend à comprimer un corps.



37

UDC 531.223

pressure² ISO (external); **intensity of pressure** BS: The force (34) per unit area exerted upon the surface of a body.

pression spécifique; pression² ISO, NF (extérieure): Rapport de la force (34) exercée sur une partie de la surface d'un corps à la superficie de celle-ci.

38

UDC 531.223

thrust; thrust load ISO: Any compressive force (36) acting on a body in the direction of its axis.

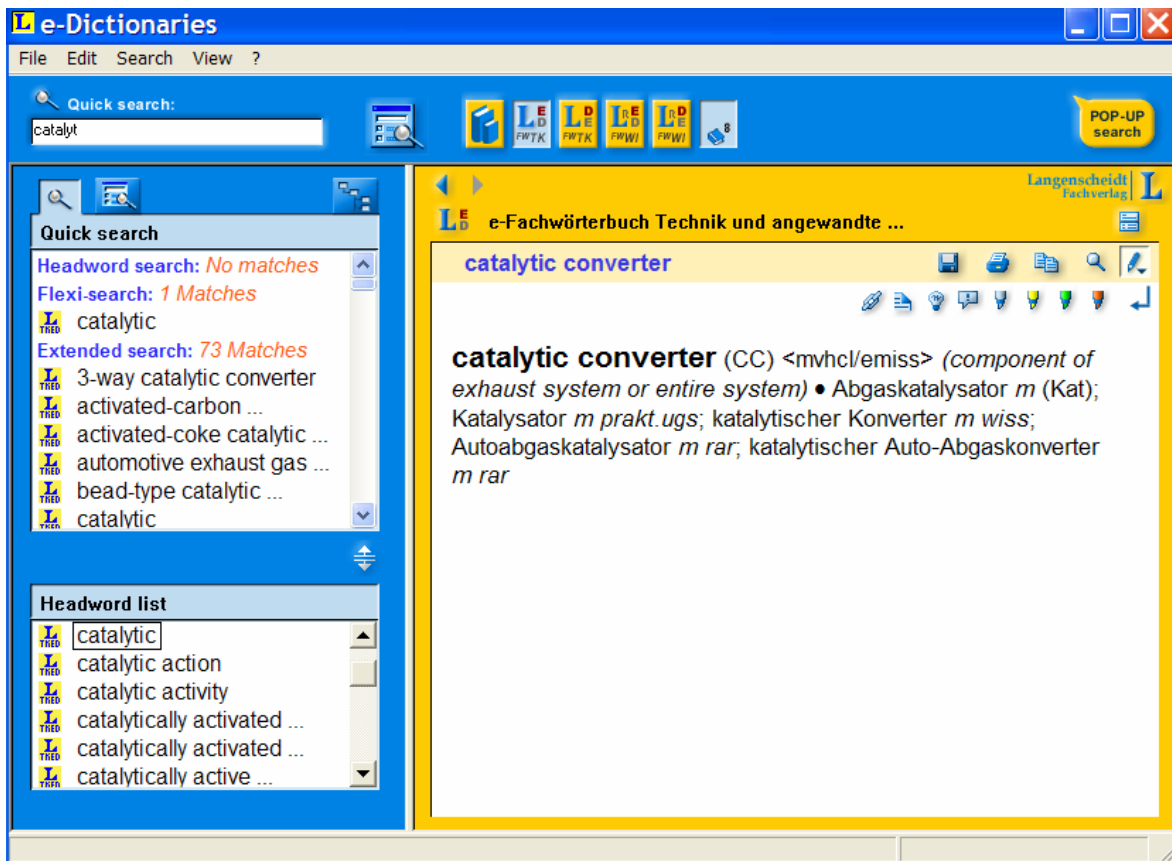
poussée axiale [longitudinale]; **charge axiale** ISO; **force axiale** [longitudinale]: Force de pression (36) agissant sur un corps dans la direction de son axe.

Vide not. fig. 227

(Fig. 3: Title page and sample dictionary page of Wüster's Machine Tool)

Today, we find a large variety of terminological dictionaries in major subject fields available on the German dictionary market, most of them bilingual (German-English, German-French etc.). These dictionaries are published and marketed by publishing houses in order to support LSP translators but also subject specialists. Most of them are not guided by strictly terminological principles, they rather follow the lexicographical approach. Nowadays, it is very difficult to find authors and experts to update existing and to create new dictionaries. Most of the LSP dictionaries are also available in electronic versions (see fig. 4), but these versions are normally not compatible with current terminology management software tools. Langenscheidt, a major dictionary publishing house, is the first producer of LSP dictionaries that offers the dictionary content as an integrated terminology collection within terminology management systems (MultiTerm, Trados and TermStar, Star).

To support the elaboration and compilation of LSP dictionaries, a new revised and updated version of the DIN standard DIN 2336 (Presentation of Entries in Terminological Dictionaries and Terminological Data Banks) was published in 2003.



(Fig. 4: Langenscheidt's e-dictionary user interface)

TERMINOLOGICAL DATA BANKS

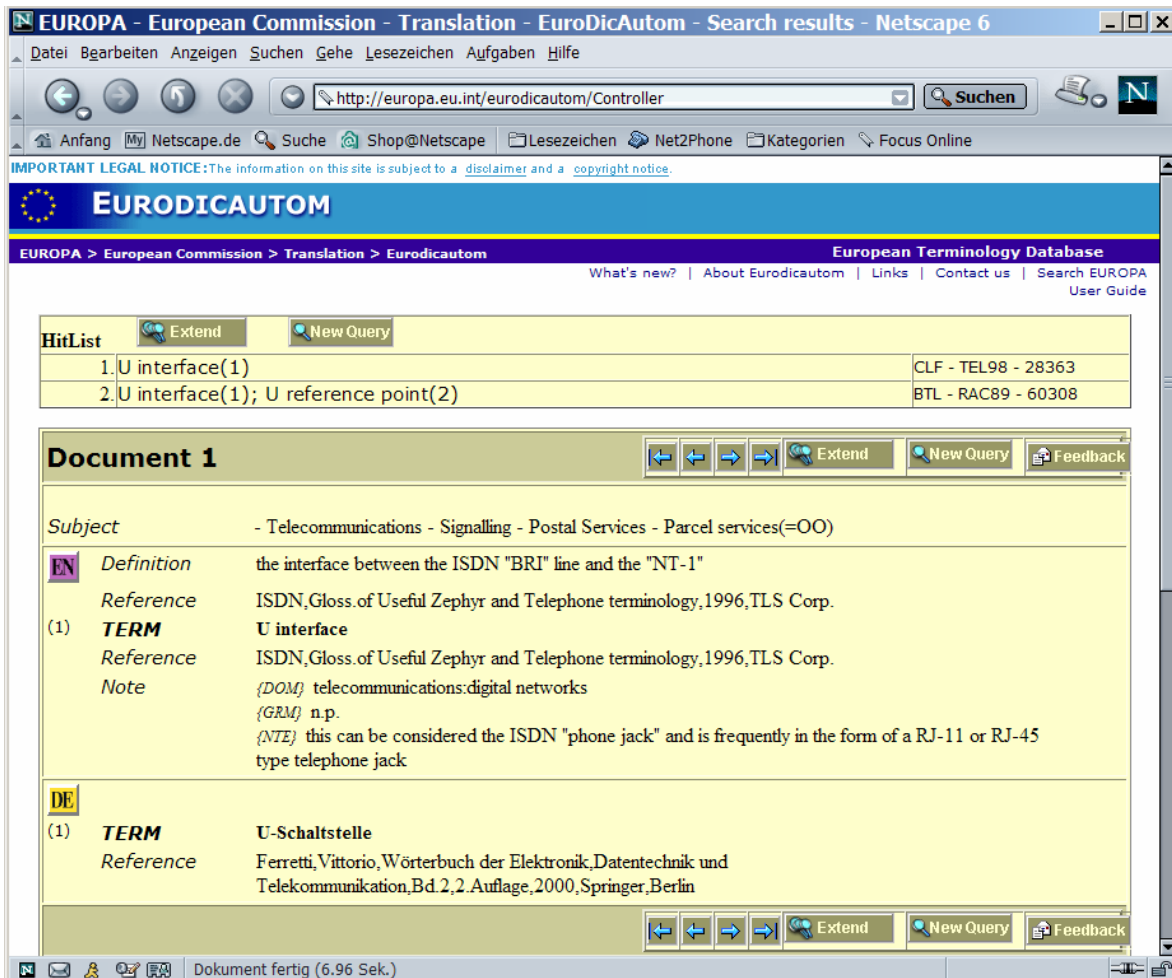
The first approaches to the use of computer technology for managing terminological data were developed in Western Europe in the early sixties of the last century. As numerous translators frequently had to co-operate in large translation projects under great time pressure in order to meet a given deadline, there was an urgent need for national and international institutions and for multinational companies with large translating and interpreting services to find a solution for terminology management.

Owing to the restrictions imposed by the hardware and software components available at that time, and owing to the organisational infrastructure needed for operating mainframe computers, only economically strong organisations and institutions could afford to implement and run their own terminological data bank. It is therefore not surprising that the first terminological data banks were set up by large language services of governmental organisations and big enterprises, by standards organisations, and by language planning organisations, e.g.:

- EURODICAUTOM (Commission of the European Community)
- LEXIS (Federal Office of Languages, Germany)

- TEAM (Siemens AG, Germany)

The institutions and organisations have maintained and used most of these large terminological data banks down to the present day, so that the terminology collections cover hundreds of thousands of entries. Only few of them are also accessible to external users via the World Wide Web.



(Fig. 5: Eurodicautom's World Wide Web user interface)

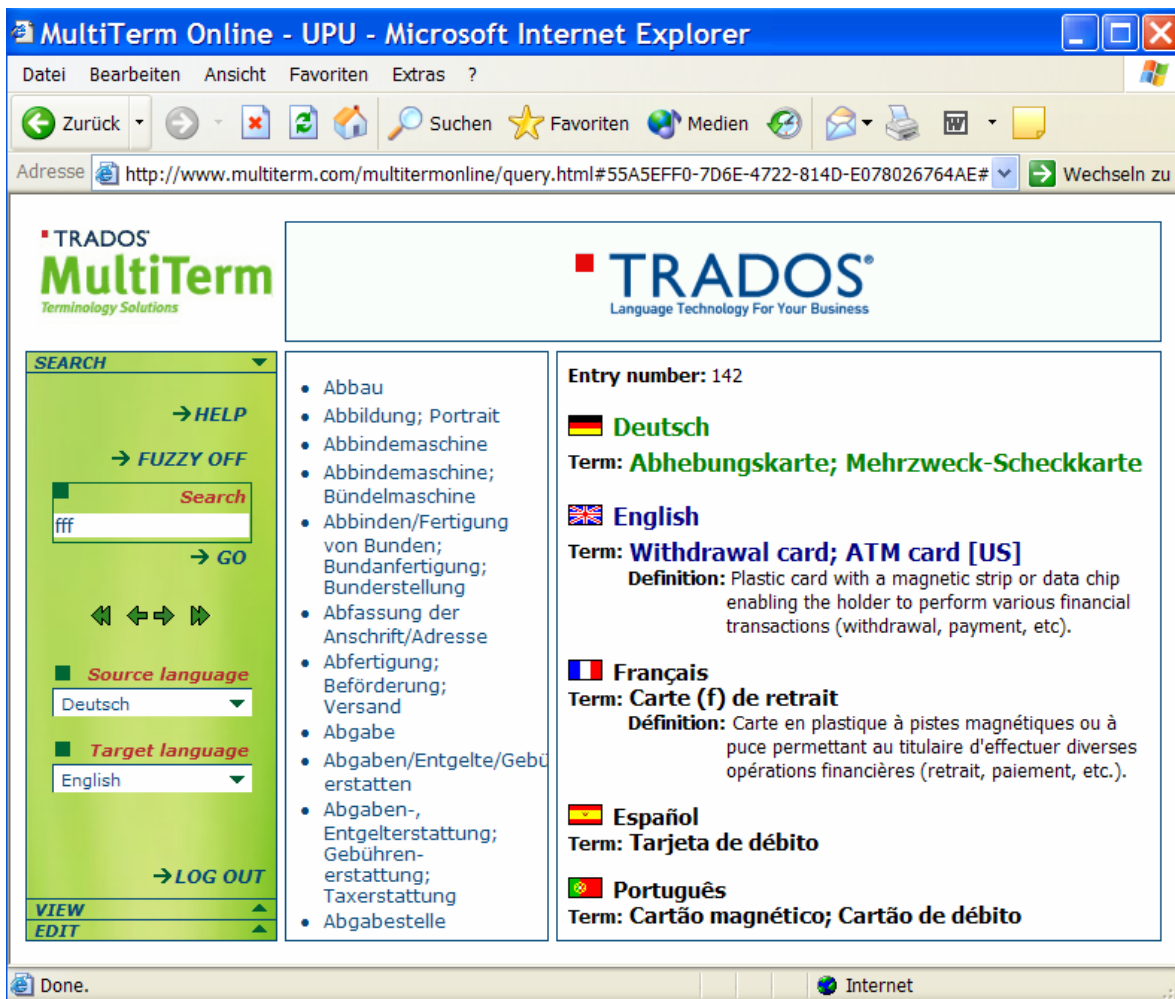
The use of computers for managing the standardized terminology of the German Standards Association DIN (Deutsches Institut für Normung) has a long tradition, too. This started with the application of the TEAM terminology data bank software for their specific needs. Last year, DIN started an initiative with the title "German as the language of standardization" (Deutsch als Sprache der Normung) which aimed at recording the complete collection of terminology published in German standards.

Till now, terminological entries of almost all German terminology standards have been stored in a MultiTerm database, which contains not only German terms and definitions, but

very often also English and French terms and definitions from DIN-EN and DIN-ISO standards. This terminology data bank is not only used within the DIN to support the technical committees and to harmonize German standardized terminology, but is also sold on CD-ROM to external users.

Today information technology pervades every aspect of life, and computers are used in all professional (and private) environments. Language workers such as terminologists, technical writers, translators, interpreters, language planners, and standardizers use very sophisticated and powerful terminology management programs in order to support their work. But terminology management systems are not only used as single applications on local workstations, intranets and wide area networks, they are also integrated into workbench systems and communicate with word processors, publication systems, translation memories and machine translation systems.

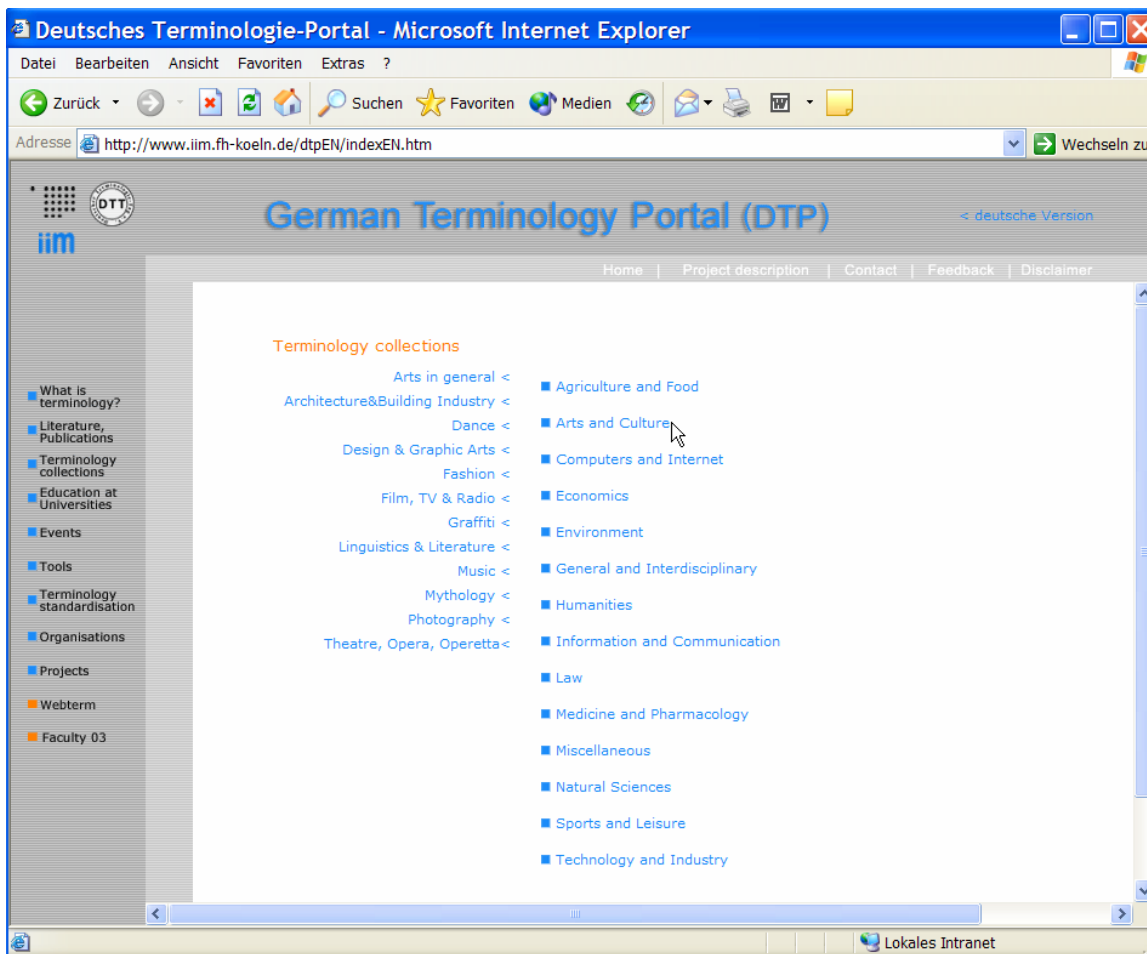
Professional features and additional components for project management, data interchange and term extraction allow their application in larger language or translation services. At the beginning of this century, initial approaches for web-based terminology management were developed, and client-server systems like MultiTerm iX and Star's WebTerm are state-of-the-art in professional terminology management of today.



(Fig. 6: MultiTerm iX web sample database)

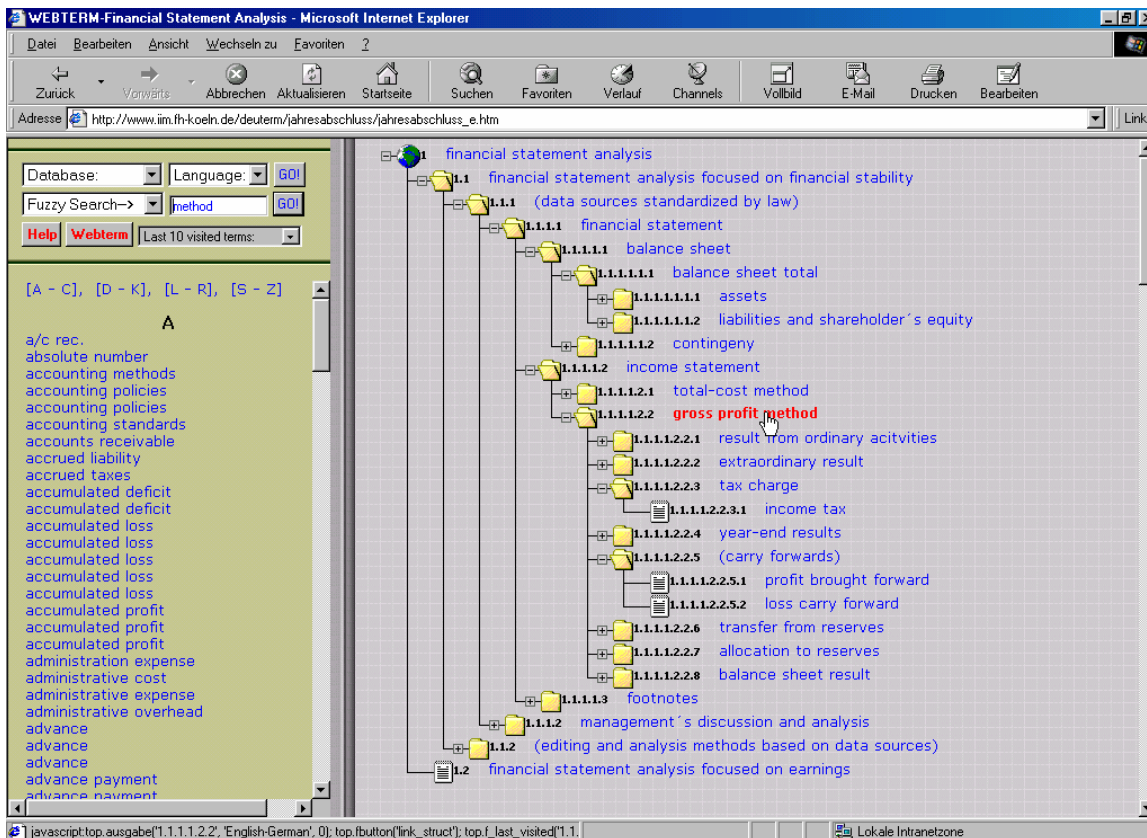
Since the amount of information accessible via the World Wide Web is growing every day, and since everybody has easy access to the web from almost any computer, the internet has become an important resource for terminology work. Many on-line dictionaries, glossaries and terminology data collections are (freely) available on the web, but the user has difficulties finding them and evaluating the quality of these terminological resources. That is why terminology and dictionary portals are very useful as they assist the terminologist and terminology user in finding the relevant information.

One example of such an information point is the German Terminology Portal (DTP = Deutsches Terminologie-Portal), created and maintained by the Institute for Information Management of the University of Applied Sciences in Cologne. The portal provides information related to terminology and the German language, i.e. multilingual terminology collections containing German (see: www.iim.fh-koeln.de/dtp).



(Fig. 7: DTP inventory of terminology collections)

Most terminology data bank and terminology management systems are maintained in order to support translators, technical writers, and domain experts. In general they contain no more information than is needed by this user group, such as terms in several languages, grammatical categories, subject field information, definitions and context examples. Only few of them can serve as terminological knowledge bases showing characteristics of concepts, relations between concepts, concept systems, and ontologies. Such approaches are found exclusively in research projects with very limited applications and domains, or in terminological graduation theses submitted to universities (see: WebTerm project in fig. 8). It should be mentioned that most commercial terminology management systems are not very suitable for extending the traditional term bank design to terminological knowledge bases.



(Fig. 7: WebTerm ontology at www.iim.fh-koeln.de/webterm)

OUTLOOK

Owing to the technological progress which has taken place in the development of computers, software, and networks, the methods and tools for professional terminology work have changed dramatically, and this progress will continue further and faster. Terminology management covers much more than traditional applications such as translation, technical writing and standardization; many activities in e-business, e.g. multilingual electronic product catalogues and classifications, are influenced by terminology and must therefore follow the terminological approach and take into account findings of terminology methodology. The crucial meta-methodical role played by terminology in our global information society must be met by the terminology community.

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**COMMENT ON L.B. TKACHEVA AND S. D. SHELOV:
"TERMINOLOGICAL DICTIONARIES AND DATA BANKS (PRESENT
STATE AND PERSPECTIVES)"**

At a very early stage of my terminological apprenticeship, in the seventies, I became aware of the comprehensive theoretical reflexion upon terminology and terminology processing which took place in the USSR and of the impressive number of articles and guidelines related to this area of language use published there.

For political and linguistic reasons my insights remained limited. However, thanks to Québec translations of central passages of publications of Russian scholars, some detailed elements of Russian terminology thought was brought to my knowledge. Via translated extracts from e.g. Korsunov and Samburova (*Guide de travail en terminologie*) and an extract from Ahmanova and colleagues (1974), I was able to appreciate the high level of theoretical linguistic, systemic and epistemological deliberations on which Russian terminology processing and terminography were based in those days.

It is worth mentioning that in the writings of the French linguists and terminologists Alain Rey and Pierre Lerat, which I know quite well, the Soviet, and later Russian, positions on terminology have been granted much attention.

After the fall of the Iron Curtain, the language barrier remained a hindrance, but publications of Russian scholars, notably in English, in the form of articles and papers presented by e.g. Sergei V. Grinev (1994), L.B. Tkacheva (1998), and Faina Citkina (1994) have given me some valuable insight into more recent developments in the field of LSP and terminology science as viewed and applied by Soviet and later Russian researchers and practitioners.

The presentation I shall comment on is descriptive rather than argumentative. Therefore, I shall not engage in a contradictory examination of principles, theories or hypotheses, but instead observe, infer, and ask questions. I shall focus solely on terminography, observing the basic distinction between lexicography (lexical decoding) and terminography (TG) (discursive).

Mrs. Tkacheva's and Mr. Shelov's presentation is concise and informative. At the same time it leaves us with some intriguing questions.

PRESENT STATE

My own terminographic experience stems from bilingual projects dealing with the domains of oil and gas extraction, labour relations, commerce and business, projects which had dif-

ferent aims. The oil and gas project was initiated with the goal of creating new terminologies and mobilising existing ones in order to replace English terminology. The labour relations project served as an exemplary field whose conceptual systems were to be identified and established as a prerequisite to presenting a complete systematized version of the whole field, in addition to testing equivalence criteria in a domain of social practice (intranational). The terminology of business and commerce are an integral part of my teaching of French business language and translation.

I am thus fully aware what an arduous task terminography represents, and I readily subscribe to the authors' complaints about the many misconceptions regarding this immense and immensely important work. Terminography has very little to do with compilation, in the original sense of this word. The authors point out a problem common to many countries, and with which Norwegian terminologists are quite familiar: people fail to see the extensive work that has to be carried out in order to ensure quality, reliability, and relevance. Having participated in TG, I also recognize each of the stages, problems, and challenges described in this paper.

In my country, neither terminology nor translation are highly esteemed activities. Being a teacher of French and doing research into French LSP and terminology, I am therefore impressed by the efforts made by French authorities to initiate and support terminology processing and terminography. This is obviously a politically and culturally motivated circumstance. Having read this paper, I am even more impressed by the TG activities taking place in Russia. According to Grinev (1994), more than 20,000 people are (or were) the authors of at least one publication dealing with terminology. This fact is in sharp contrast with the indifference generally met in Norway as far as terminology and TG are concerned. Whether cause or effect: the use of Norwegian (NSP) is receding in a number of fields of science and technology.

The paper also reveals the strong position enjoyed by the theory of terminology – proclaimed an independent field of knowledge at the beginning of the 1980s, according to Grinev (1994) – which underpins TG conception and processing. The Russian position in this respect underscores the indispensability of preestablished principles and methods, such as guidelines for systematisation, to form a basis of all TG projects. In fact, the very notion of 'terminology' implies the feature of 'system'. I also notice the diligence with which linguistic factors are taken into account when processing terminologies and measuring equivalence, e.g. socio-linguistic considerations (cf. e.g. Tkacheva 1998) and collocations, which represent a kind of terminological valency, and which are extremely valuable for translation tasks. Standardization plays an equally prominent role in Russian TG, an activity which is in my view one of the main goals of this practice, especially within science and technology.

In addition to the wide range of parameters taken into account in TG approaches, there is another striking feature of Russian TG: the number and disparity of domains handled and the support yielded by public authorities. Examples like politology, religion studies, advertising and social work indicate a broad conception of what terminology implies.

Judging from this presentation, it seems that Russian researchers and practitioners in terminology are managing well the transition from the ‘paper age’ to computerization and ICT. Terminology management, harmonisation, LSP translation, terminology knowledge bases, knowledge engineering, knowledge representation, and artificial intelligence are key concepts in this respect. The powerful tools at our disposal to-day are a sine qua non for most scientific and social functions, including TG. Terminology management is in fact facing several challenges, making the use of computer tools indispensable:

- according to G. Gréciano (1999), citing Kocourek, there is an annual deficit of denominations amounting to 30,000, a huge challenge to neonymy;
- editing, maintenance, updating, and removal of obsolescent terminology (high terminological turn-over), userfriendliness;
- keeping the use of national idioms alive in all LSP areas, ensuring linguistic diversity

Considering the disproportion between the number of concepts (notions) to be named, and the lexical and morphological stock at our disposal, not to mention the free flow of terms, words, and notions among specialized spheres and the consumer sphere, polysemy is bound to be a central feature of language use as a whole.

The existence of what Grinev (1994) calls ‘consubstantial’ terms, frequently observed in ICT terminology, undoubtedly constitutes a problem for term recognition and handling. In this connection, it would be interesting to know to what extent Russian researchers and terminographers have developed efficient tools for automatic term extraction, and how these tools handle cases of ‘consubstantiality’.

According to the authors, the efforts made to solve AI-related problems and to develop a terminology knowledge base involve cooperation with different institutes of the KNT, presumably between cognitive scientists and terminologists. Such cross-disciplinary cooperation is probably made possible as a result of the organisation characteristic of Russian Academia. This is in apparent contrast with the situation in Western countries, as was pointed out by Ahmad (1993), cited by Condamines (1994):

”Le plus souvent, une commune indifférence règne, ce qui est regrettable”.

In this respect, the title of an article by the French researcher G. Otman is equally relevant:

”Cogniticiens, ne négligez pas la terminologie” (Otman 1992).

However, machines can not supplant the human mind. Conceptual processing, origination, production, and ordering of knowledge are human efforts whereas the machine interprets lexis, syntax, symbols, nodes, and arcs. The authors’ account of the basic idea of the KNT terminology knowledge base illustrates this point. As a matter of fact, this base builds on systems of term definitions. To allow analysis of such systems, they must have been the object of systematic, stringent, and meticulous elaboration based on consensus. First they must

be conceived in natural language and then ‘translated’ into a type of controlled language, a task which has to be accomplished by teams of professionals, i.e. using human resources.

PERSPECTIVES – CHALLENGES

I assume that Russia’s dominant position in terminology management and TG can largely be explained by its scientific and technological achievements and exploits after World War II. The USSR, and presently Russia, has been innovative in the scientific and technological domains, developing and promoting original terminologies, which have been imposed or established through usage (naming being one of the fundamental functions of language) without having to pass through a stage involving the question of how to ‘translate’ English terms.

To-day Russia must face the same language and naming challenges as the other countries of Europe, notably in domains like ICT, economics and finance. Considerable efforts must be made in order to respond to these challenges, e.g. in respect of naming principles (morphosemantic and lexical patterns), socio-linguistic inquiries, term bank formats, cross-disciplinary cooperation, and human resources. This calls for intranational cooperation.

There is little doubt that the existing terminological ‘infrastructure’ and the extensive work carried out in the former USSR, now Russia, will implicitly and explicitly contribute to upholding the Russian language as a medium for all kinds of knowledge and for all types of communication. Terms are indeed, as asserted by the authors, intellectual products and vehicles of specialized knowledge, practice, and regulation. Russia thus seems thus to be placed in a favourable position as far as avoiding domain losses and handling new areas of special knowledge is concerned.

What about international cooperation? I shall conclude on the opportunities offered by Europe in the field of terminology and TG by quoting briefly from the ‘Brussel declaration for international cooperation on terminology’, the conclusive document adopted by the Summit ‘Terminology: Interaction and diversity’ (Brussels, June 2002):

”The representatives of national and international terminology associations, networks and documentation centres, call upon States and governments, intergovernmental bodies and international organizations, and bodies involved in language policies to:

- support the creation of terminology infrastructures in major economic groupings, such as Europe and the future FTAA and
- support other existing terminology infrastructures

I am convinced that in the field of TG and terminology, Russia and Europe, with its proclaimed aim of safeguarding cultural and linguistic diversity, have a common basis and common goals.

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