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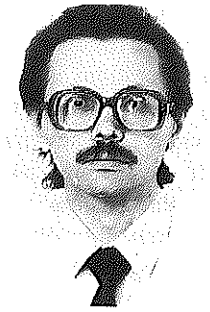

Terminological Research in the Former USSR

Grinev, S.V.: **Terminological research in the former USSR.** Knowl.Org. 20(1993)No.3, p.150-159, 10 refs.
Outlines in short the history of terminology in the former USSR from the thirties to the nineties and draws a picture of terminological research activities using statistics of terminology dissertations in chronological order (by five and ten year cumulations) with regard to their correspondence to scientific and technical disciplines/subject areas, languages and fields of terminology science itself with an analysis of the latter's findings. Concludingly seven proposals for the development of a theory of terminology are made stressing the need for the establishment of regional research centers and co-ordination of activities. (K.O.)

1. History

The beginning of terminological research in the USSR was connected with the idea of language planning and building which was central in linguistic studies in this country in the 1920-s and the 1930-s and formed the basis of the practical work of development of systems of writing for a number of national languages and improvement of the existing languages. It was motivated by the quite reasonable belief that in a country with a planned economy favourable conditions arise for the introduction of "correct, common and understandable terminology" (1-4). So alongside with carrying out the task of elaborating alphabets and establishing grammatical rules for a number of national languages it was found expedient to elaborate the effective and sound scientific and technical terminology, first of all in Russian and then in other languages of the former USSR.

The first attempts to substitute the unsatisfactory terminological forms by new forms and to standardize some terminologies had small success due to the lack of coordination of terminological work and the absence of the established principles of solving a number of linguistic and logical problems. Therefore a special Commission (afterwards Committee) of scientific and technical terminology was founded in the USSR Academy of Sciences with the task of elaborating a reliable theory of terminology and methodology of terminological work (primarily ordering of terminology).

Unfortunately at that time linguists, with some exceptions (G.O.Vinokur, A.A.Reformatsky), showed small interest in studying terminological lexics (this attitude remained till the beginning of the 1950-s and was mentioned at the first conference of Soviet terminologists). At the same time the failure of the first terminological standards showed the need for investigation of the nature of language. this work was quite expertly done by one of the founders of the Russian scientific school of terminological science - D.S.Lotte. A professional engineer, he thoroughly analyzed such linguistic phenomena as synonymy, polysemy, word formation, word combination, some types of abbreviation of lexical forms, borrowing and assimilation of borrowed forms. He also established the main methods of terminological work and compiled the list of the necessary qualities of the "ideal" term ("terminological requirements" (1)). The results of his research and also the work of E.Dresen (5), (6) and G.O.Vinokur (7) comprise the foundation of the Russian school of terminological science.

The next stage of development of terminological research in the USSR began at the end of the 1940-s. It was marked by a progressive enlargening of the sphere of terminologies of various languages of the Soviet republics: widening of the subject area by including terminologies of arts, crafts, military and sport terminology; historical studies; investigation of the status of terms and their relations with common words and nomenclature units (the latter received quite a special meaning in Russian terminological tradition, different from that which is used in Western terminology science); lexicographical problems of terminology; and problems of terminology translation. This stage is marked by the noticeable growth of interest of linguists in terminology.

2. Growth of Terminological Literature in the Past

This was reflected in the steady increase of terminological publications: if there were only 11 publications in the 1930-s and the same number in the 1940-s, in the 1950-s there were 44 and in the 1960-s about 480 publications (see N.P.Romanova (8)). In the 1970-s the annual amount of publication reached 150-200 (V.M.Leichik et al in (9)). The bibliography of terminological publications containing only Ukrainian issues of that period contains about 1,500 books and articles and in the 1980-s it was at least twice as much.

Considering the absence at present of specialized terminological periodic literature in the geographic area of the former USSR (with the one exception of the journal "Scientific and Technical Terminology") with the consequence that a great number of terminological publications

appearing in various journals, collections of materials presented at various conferences (first of all those dealing with problems of linguistics, theory and practice of translation, documentation, scientific information science and all other subject fields) and also in various subject-oriented publications, the exact number of published terminological works in the USSR cannot be estimated. Quite probably there are at present some 40-50,000 publications existing in this field.

3. Dissertations in Terminology

In order to provide a picture of the present situation it seems to be more convenient and demonstrative to use the number and thematical distribution of prepared and defended dissertations as characteristics of the main fields and directions of conducted research. As a rule dissertations reflect the results of substantial research described much more fully and thoroughly than it could be done in journal articles or conference papers. Moreover, at the present time the number of dissertations treating terminological problems could be ascertained quite exactly because they are registered in special issues. It is much less than the general number of terminological publications and may be counted and analyzed.

Such analyzes carried out by the author in 1990-1992 enabled to make some observations concerning the choice of subject fields, languages taken as the object of study, the aspects of studies of various terminologies and terminological problems that were investigated and also some trends in the development studies in the USSR that might be interesting to terminologists, linguists, translators and all specialists dealing with terminological problems.

4. Documents Used to Collect the Necessary Data

(Editors Note: The titles were given in Russian and English. We are using in the following only the latter form.)

1. The State Lenin Library: Bibliography of Doctoral Dissertations for the period 1941-44. Moscow 1946.
2. The All-Union Book Chamber: The Yearbook of Dissertations. 1936 The first year of publications. Moscow 1938.
3. Doctoral and Candidate Theses defended at the Moscow State University in the years 1934-1954. No.1, 3. Moscow 1956-1960.
4. The Leningrad University. Dissertations defended from 1934-1954. Leningrad 1955.
5. The Leningrad University. Dissertations defended in 1955. Leningrad 1956.
6. The Leningrad University. Dissertations defended from 1956-1958. Leningrad 1960.
7. The Leningrad University. Dissertations defended from 1961-1968, No.1-2. Leningrad 1970-73.
8. The Lenin State Library. Bibliography of Doctoral Dissertations of the year 1945. Moscow 1947.
9. The Lenin State Library. Bibliography of Doctoral Dissertations in 1956. Moscow 1957.
10. Kondrat'ev, A.A.: Catalogue of Candidate of Science Dissertations received by the Lenin State Library. Vol.1-4. Moscow 1956-1958.
11. Catalogues of Candidate and Doctor of Science Dissertations, received by the Lenin State Library and by the State Central Scientific Medical Library in the years 1957-1990. Moscow 19958-1991
12. The All-Union Book Chamber: The Book Chronicles. Additional Issue. Authors' Abstracts of Dissertations. All numbers from 1982-1990. Moscow: 1982-1991.

5. The Soviet System of Awarding Scientific Degrees

To understand fully the impact of preparation of dissertations on the general develoment of science in this country and to facilitate better comprehension of the following data some information should be given about the Soviet system of awarding scientific degrees, which is still functioning in the geographic area of the former USSR as means of ensuring a sufficiently high standard of dissertations.

No scientific degrees are conferred to the graduates of the higher education institutions (only recently some newly emerged doubtful institutions of paid higher education promise their perspective students bachelors' and masters' degrees) though it was generally assumed that diplomas of the most advanced universitites given after preparation and public defence of diploma papers (having not less than 50 typed pages and reflecting the results of an independent study) are roughly equal to the master's degree. Diplomas of other higher education institutions roughly correspond to the bachelor's degree.

The only existing scientific degrees are degrees of candidate of science and doctor of science. The candidate of science degree is given after a postgraduate study and presentation and public defence of a dissertation usually having not less that 150 typed pages in volume and containing the description and results of an original investigation (under general scientific supervision of a professor) of a particular scientific problem. During defence usually two personal opponents are present (at least one of them being a doctor of science) and a representative of some competent institution acting as a collective opponent to express an opinion on the quality of the dissertation. This degree roughly corresponds to the PhD degree.

The doctor of science degree is awarded after presentation and public defence of a dissertation usually having not less than 350 typed pages in volume and containing a description and theoretical interpretation of quite an original investigation leading to establishing a new scientific discipline and laying out its theoretical foundations. During defence of a doctoral thesis usually three personal opponents are present (all of them having a doctor of science degree) as well as a representative of a collective opponent.

In both cases, the dissertations defended are sent to the Highest Attestation Commission (HAC) where they are examined by experts. If their quality and scientific level are considered quite sufficient they will be approved by the HAC; this takes usually about half a year for a candidate and a year for a doctoral dissertation.

6. Selection of Relevant Dissertations

Dissertations belonging to terminological science were selected by an overall examination of materials in the

sources listed above under the numbers 1-10 first of all of thesection "Linguistics"because theoverwhelming majority of terminological dissertations belong in there, and also of the sections of Philosophy, Logics, Psychology, Education, Scientific and Technical Information, Automatics and Computerized Systems.

For the subsequent analysis not only those works were selected which explicitly showed special lexical units and terminological operations with concepts as objects of study, but also dissertations having titles with a considerable probability to be attributable to terminology, such as some works dedicated to studies in the history of development of particular scientific concepts (concepts being expressed by terms the development of which is displayed in the history of the semantic development of meanings of respective terms and of changes of terms) and also to the problems of elaboration of information languages of the descriptor kind with a predominant terminological character. At the same time those works were left out which were dedicated to the assimilation of scientific concepts or the establishment of relationships of concepts in the process of education.

It should be mentioned that the analysis of terminological problems counts for an important part of linguistic studies comprising about 10% of their number while at other thematic sections its part is very modest. For example, in 1990 all of the 12 monthly issues of "Authors Abstracts of Dissertations" (our No.12 of the list mentioned above) contain information about 22,740 dissertations including 731 (=3.2%) dissertations belonging to the section "Linguistics". In this section 70 dissertations have definitely terminological character, while in all other sections there are only 10 terminological dissertations belonging to the sections "Philosophy", "Information Science", and "Education".

7. Aspects for Further Investigation

The following aspects that were reflected in the source literature were chosen for further investigation:

a) chronological parameters of terminological studies (years of preparation of dissertations)

b) scientific supervisors and the opponents of dissertations

c) speciality conferred by the HAC

d) regional distribution of terminological studies established on the basis of places of preparation of dissertations

e) volume of dissertations (in pages)

f) the presence of illustrative material (tables, drawings, schemes, maps, etc.)

g) the main centres of preparation of terminology scientists (found on the basis of the number of dissertations successfully defended in the given institutions and towns)

h) thematical scope of the analyzed special lexical units and terminologies (fields of knowledge - sciences and disciplines, the terminology of which had been investigated)

i) aspects of investigation of terminologies (terminological problems that were treated in dissertations)

j) languages that were investigated

k) languages used in description of terminologies (some dissertations were written in national languages other than Russian.

In the following sections statistics are provided only for the cases listed under a), h), j), and i).

8. Statistical Distributions

8.1 Chronological Distribution

A constant increase of the number of terminological dissertations can be noted.

(Editors Note: The paper contained a listing of the number of dissertations per year between 1946 until 1989. For reasons of space we are providing here only a survey on the increase during the five-year periods from 1946 until 1989 as follows. A copy of the exact distribution by years can be requested from the editorial office.)

Years	1946-59	1951-55	1956-60	1961-65	1966-70
Diss.	4	24	26	80	151
Years	1966-70	1971-75	1976-80	1981-85	1986-89
Diss.	252	211	380	388*	

Table 1: Number of Dissertations by five-annual cumulations. *) not the final data

Thus, if in the 1940-s there were only 4 dissertations, and in the 1950-s 50 dissertations, in the 1960-s their number already was 231, in the 1970-s 463, and in the 1980-s their number reached more than 900 although we have exact information only about 768 of them.

8.2 Thematical Distribution by Subject Fields

One of the most important characteristics of terminological studies is their thematic distribution with respect to fields of knowledge to which the analyzed terminologies belong. In order to class the existing fields a special classification scheme was elaborated on the basis of the classification used in the bibliography of source 1 1 with a consideration of the classification used in the Laboratory of Medical Terminology of the Russian Academy of Medical Sciences. In the process of classing terminological dissertations the resulting classification was corrected.

(Ed.Note: In the paper the full scheme was given as well as its application for the statistics according to the five-year distribution as used above. We are providing here only the table for the decade periodization, see Table 1)

	1940-50-s	1960-s	1970-s	1980-s	Total
special lexics	12	30	54	87	183
scient.-techn. terms	1	3	11	15	30
general scient. terms	-	-	1	6	7
technical terms	1	6	7	10	24
math	1	5	6	5	17
physics	-	10	5	18	33
astronomy	-	-	6	7	13
metrology	-	3	8	4	15
chemistry	-	3	7	8	18
geography	-	8	14	18	40
hydrology	-	-	3	5	8
geophysics	-	-	3	13	16
geology	-	-	2	1	3
biology	1	4	13	5	23
botanics	1	10	8	19	38
agriculture	4	10	16	12	42
zoology	1	4	15	20	40
animal husbandry	-	6	15	9	30
agriculture (in gen.)	-	4	8	5	17
hunting/fishing	-	9	6	7	22
sport	-	-	13	5	18
medicine	1	12	19	28	60
crafts	1	4	2	5	12
mining/power eng.	1	-	4	6	11
metallurgy	-	1	5	13	19
construction	1	1	10	21	33
machine building	-	2	11	9	22
electronics/communic.	-	5	13	27	45
transportation	-	2	8	9	19
light industry	1	6	14	21	42
food industry	1	2	11	13	27
services/commerce	-	4	8	1	13
history	-	-	-	2	2
ethnography	-	2	3	12	17
bibliography/publ.	-	3	3	4	10
social/political	9	11	21	15	56
philosophy	-	4	9	12	25
logics	-	-	2	1	3
psychology/pedagogics	-	1	4	12	17
sociology	2	9	14	15	40
state sciences	1	3	4	6	14
law	-	4	2	10	16
economics	1	7	15	14	37
military sciences	5	10	7	17	39
art-criticism	-	-	1	2	3
music	-	2	3	4	9
theatre/cinema/TV	-	1	2	4	7
decorative art	1	2	2	6	11
fine arts	4	1	2	1	8
architecture	-	-	-	5	5
literary criticism	1	3	2	9	15
linguistics	1	8	12	22	43

Table 2: Distribution of terminology dissertations by disciplines

8.3. Language Distribution

The next of the main parameters that are present in bibliographic descriptions of the selected dissertations are the object language(s). In order to class dissertations accordingly a special classification was elaborated.

(Ed.Note: This classification system was also included in the full paper and was applied to show the distribution by five-year periods as utilized above. We are providing in the following only that table which lists the distribution by decades)

It should be noted that in some works two or more languages were made the objects of study. This fact could not be made explicit in Table 3.

8.4 Distribution by Terminological Topics

For terminology science the most important parameter is the distribution of dissertations according to terminological problems treated. To class dissertations accordingly a classification of terminological subjects was elaborated as follows:

	1940-50-s	1960-s	1970-s	1980-s	Total
Slavonic (gen.)	1	3	7	11	22
Russian	15	98	214	340	667
Ukrainian	3	14	23	37	77
Byelorussian	-	13	8	21	42
Polish	1	3	2	6	12
Czech	-	3	4	3	10
Slovak	-	1	2	3	6
Bulgar./Maced.	-	-	4	1	5
Serb./Sloven.	-	-	2	4	6
English	9	22	76	158	265
German	1	13	48	46	108
Danish	-	1	-	-	1
Norvegian	-	-	1	-	1
Old German	-	-	-	4	4
Roman	-	1	-	-	1
Latin	2	1	3	5	11
French	3	7	21	32	63
Spanish	-	2	1	11	13
Italian	-	-	1	-	1
Rumanian	-	-	-	2	2
Moldavian	-	6	5	4	15
Baltic	-	-	1	-	1
Lithuanian	1	4	-	4	9
Lettish	-	2	3	3	8
Indian	1	1	2	-	4
Ossetic	-	1	6	1	8
Tadjik	1	-	6	6	12
Persian	-	-	1	2	3
Pamirian	-	-	-	1	1
Indo-Europ.(gen.)	-	-	-	3	3
Hettian	-	-	-	1	1
Armenian	-	1	3	2	6
Greek	-	-	4	4	8
Albanian	-	-	-	1	1
Basque	-	-	-	3	3
North. Caucas.	1	-	2	3	6
Georgian	-	3	6	10	19

Table 3: Distribution of terminology dissertations according to language(s) treated (cont'd on following page)

Finnish	-	-	-	1	1
Estonian	1	2	3	1	7
Udmurt	1	-	1	-	2
Komi	-	-	2	-	2
Mari	-	-	-	2	2
Mordovian	-	-	-	1	1
Hungarian	-	1	-	-	1
Mansi	-	1	-	1	2
Turkic	-	1	2	-	3
Azerbaijani	-	3	5	8	16
Turkmen	-	4	3	4	11
Turkish	-	1	-	-	1
Uzbek	2	8	13	19	42
Uigur	-	1	-	-	1
Kazakh	2	5	8	8	23
Tatar	1	-	3	2	6
Bashkir	-	1	1	-	2
Kara-Kalpak	-	1	-	4	5
Chuvash	-	-	1	2	3
Kirghiz	-	2	6	3	11
Tuvinian	-	-	1	-	1
Yakut	-	-	-	1	1
Mongolian	1	-	1	3	5
Burvat	1	-	-	-	1
Kalmyk	-	-	-	1	1
Evenian	-	-	-	1	1
Chukchi	-	-	-	1	1
Chinese	-	1	2	-	3
Tibetian	-	-	-	2	2
Vietnamese	-	-	-	4	4
Laotian	-	-	-	1	1
Indonesian	-	1	-	-	1
Korean	1	-	-	-	1
Japanese	-	1	-	1	2
Arabic	-	1	3	3	9
African	-	-	-	1	1

Table 3: Distribution of terminology dissertations according to language(s) treated (continuation of former page)

or. in terms of language families and groups

	1940-s	1951-5	1956-60	1961-5	1966-70	1971-5	1976-80	1981-5	1986-9
Slavonic	-	9	11	42	93	143	130	209	241
Germanic	1	5	4	18	18	59	66	105	103
Romanic	1	3	1	4	13	16	15	28	26
Indo-Iranian	1	-	1	-	2	9	6	6	4
Baltic	-	-	1	3	3	4	-	3	4
other I-E	-	-	-	1	-	3	4	9	2
Caucasian	-	1	-	-	3	5	3	9	7
Finn.-Ugor.	-	1	1	3	1	3	3	3	3
Turkic	-	1	4	7	20	32	11	27	25

CLASSIFICATION OF TERMINOLOGY SUBJECTS

1. Terminology Science. Its place among other sciences. Organization of terminological activities
11. Terminology science; its relations with other sciences; its subjects and methods of investigation; its aims and main goals. History of terminology science. Main types and results of terminological work. Main divisions of terminology science
12. Existing schools of terminology science
15. International terminology organizations
16. National terminology organizations
17. Branch terminology organizations
18. Training of terminologists

2. Typological Terminology Science
21. Stratification and typology of special lexical units (SLU) - prototerms, terms, nomens, preterms, quasiterms, terminoids, professional jargon
23. Term, its status and functions
24. Typology of terms (general scientific terms, scientific terms, general technical terms, technical terms; native and borrowed terms; archaic, obsolete, historical terms, neologisms; terms according to their structure, function, semantics, etc.)
25. Nomens
27. Typology of terminologies
29. Methods of typological studies of special lexical units

3. Descriptive Terminology Science
31. Description of prototerms and "folk terms"
32. Description of craft terms
33. Description of professionalisms
34. Description of microterminologies
36. Description of regional and national terminologies
37. Description of authors' terminologies and terminologies of particular publications
38. Diachronic description of terminologies
39. Comparative description of terminologies

4. Semasiological Terminology Science (Logical and semantic aspects of terms)
40. Concepts, their types; history of development of particular concepts
41. Concept categories, classification of concepts
42. Concept relations
43. Special semantic fields
44. Defining; types of definitions, rules of defining, typical mistakes, parameters of definitions
45. Polysemy and homonymy
46. Synonymy and antonymy
47. Unification (semantic, content ordering) of terms
48. Comparative terminology science. Equivalence of terms belonging to different languages; types of equivalence
49. Harmonization of terms

5. Onomasiological Terminology Science. Formation of terms
50. Term forms and structural types, their ratio
51. Semantic means of term formation
52. Morphological means of term formation
53. Syntactic means of term formation
54. Morphosyntactic means of term formation (composition, ellipsis, abbreviation)
55. Borrowing. Internationalization
56. Term elements. Eponyms and toponyms as term elements
57. Motivation. Term formation patterns
58. Term formation (in general) and term creation
59. Optimization (formal ordering) of terms. Design of optimal terminological systems

6. Functional terminology science
61. Statistical analysis of functioning of terms
62. General functional analysis of terms
63. Functioning of terms in special texts
64. Role of terms in a special text, in compressing and automatic processing of special texts
65. Functioning of terms in documentation and information systems
67. Functioning of terms in fiction
68. Determinologization

7. Applied Terminology Science. Terminological Work
71. Singling out (extracting) terms (criteria and methods)
72. Diachronic analysis of terminologies aimed at revealing tendencies and trends of their development as basis for taking ordering decisions
73. Ordering (recommendation and standardizatin) of special lexical units
74. Planning and control of development of terminologies
75. Translation of terms; terminological aspects of machine translation
76. Terminological expert examination, terminological editing
77. Terminological information service
78. Terminological aspects of teaching
79. Automatization of terminological work

8. Terminography
81. Terminography as a discipline, its place, subject and methods of study; its aims and goals; its divisions; history of terminography. Dictionary viewed as a special text; its composition and parameters. Typology of dictionaries
82. Estimation, design, and elaboration of dictionaries
83. Defining and explaining dictionaries
84. Other reference dictionaries
85. Translating dictionaries
86. Didactic dictionaries
87. Information retrieval dictionaries
88. Terminological data banks

9. Cognitive Terminology Science
91. Role of terms and terminologies in cognition and growth of knowledge
93. Sociolinguistic analysis of genesis of terminologies
95. Psycholinguistic analysis of terminologies, terminological aspects of cognitive and creative psyschology
97. Terms in knowledge bases and in cognition simulation

Table 4 provides a survey on the statistics of dissertations distributed over the 9 areas as given in the *Classification of Terminology Subjects*. The breakdown is by decade periods.

	1940-50-s	1960-s	1970-s	1980-s	Total
gen.problems of t-gv science	1	-	-	2	3
types of spec.lex.units	-	-	6	7	13
types of terms	1	4	7	19	31
typological studies	-	4	4	6	14
description of prototerms	5	13	17	19	54
descriptoin of craft terms	1	4	2	7	14
descriot.of professionalisms	-	6	15	6	27
descr. of microterminologies	-	13	24	26	63
descr.of regional terminol-s	1	23	43	23	90
descr.of authors' termin-s	10	10	5	6	31
diachronic description	9	63	77	143	292
comparative description	-	6	37	50	93
concepts	4	17	19	8	48
classification of concepts	-	1	6	10	17
concepts relations	-	1	11	22	34
semantic fields	-	-	1	9	10
defining	1	-	5	5	11
polysemy/homonymy	-	1	3	11	15
synonymy/antonymy	-	2	11	11	24
unification of terms	-	-	2	3	5
structural analysis of terms	4	27	70	124	225
semantic term formation	2	2	10	17	31
morphologic term formation	2	4	34	28	68
syntactic term formation	-	13	26	48	87
morphosyntactic term form-n	-	4	8	15	27
borrowing	1	4	20	23	48
term elements	-	3	5	7	15
motivation	-	3	12	7	22
term formation (in general)	-	16	23	20	59
statistical analysis	-	3	9	7	19
functional analysis	-	6	12	44	62
functioning in special texts	-	5	11	27	43
functioning in inform.systems	-	-	3	6	9
functioning in fiction	-	1	9	13	23
determinologization	-	2	4	5	11
excerpting terms	-	6	5	13	24
terminological trends	1	7	7	19	34
ordering of spec.lex.units	-	2	3	10	15
translation of terms	1	3	12	10	26
termin-l aspects of teaching	3	6	22	30	61
automatization of t-al work	-	2	7	7	16
general terminography theory	-	-	1	7	8
defining dictionaries	-	1	1	6	8
translating dictionaries	1	4	7	7	19
didactic dictionaries	-	3	-	13	16
informational dictionaries	-	2	16	16	34
terminological data banks	-	1	2	1	4
sociolinguistic analysis	-	-	-	5	5
psycholinguistic analysis	1	3	6	14	24

Table 4: Statistics of terminology dissertations according to terminological subfields

Examining these data we can state that although more than 70 years passed since the beginning of terminological studies in the former USSR, they were especially intensive and fruitful in the last 30 years when the main problems and concepts of terminology science were formulated and defined, the general methods of ordering terminologies were elaborated, and practically all of the existing divisions of contemporary terminology science received substantial attention. With the spectacular general increase of the volume of knowledge in this science a number of its divisions, such as comparative, onomasiological, typological, semasiological, and functional terminology science as well as terminography gained the status of independent scientific fields.

9. Analysis of Thematical Distributions

The analysis of terminological dissertations from the point of view of chronological trends of their thematical distribution shows that initially the main activities were concentrated on the description of terminologies and groups of terms. The *Descriptive Approach* was used in now more that 1000 dissertations dealing with diachronical description of branch, national and regional terminologies, folk terms, professionalisms and comparative description of national terminologies. However it is felt nowadays that a purely descriptive approach to terminologies is somewhat remote from the real practical needs of ordering, translating and teaching terminology. Uncoordinated heterogeneous descriptions based on different approaches and characteristics and resulting in incompatible data hinder the process of elaboration of a universal theory of terminology. Thus, lately there is an evident tendency towards precise parametrical description of terminologies which may serve as a basis for typological studies.

The importance of *Typological Studies* is caused by the fact that without establishing the actual properties of the term and limits of their variation in various branches of knowledge as well as in various languages we cannot lay out sound scientific foundations of practical recommendations for the ordering of terminologies and controlling their development. Without that, however, terminology science may transform into a collection of loosely connected individual facts and theoretical assumptions. As the result of typological studies it was found out that terminology science should not limit itself to the analysis of terms proper, for there are other kinds of special lexical units used to denote concepts, such as nomens (names of individual concepts), terminoids, professionalisms, preterms, prototerms, and quasi-terms. A description and a tentative classification of these lexical units as well as a detailed classification of their terms proper were worked out in this branch of terminology science by the Soviet theoretical terminologists (mainly belonging to the Moscow school). Currently we also evidenced a definite shift from viewing the term as the main object of terminology science to studies of entire terminologies (or at least, sufficiently autonomous fragments of terminologies) because every term is strongly dependent on the terminology to which it belongs.

Semasiological Studies (now about 200 dissertations) that are concerned with terminological meanings and therefore with content of concepts that terms denote, resulted in singling out and classing the main categories of concepts and conceptual relations and also in formulating main requirements (including linguistic ones) concerning the definition of concepts. They also resulted in working out principles of dealing with such problems as synonymy, polysemy, and homonymy.

Traditional linguistic *Onomasiological Studies* (presently more than 600 dissertations) were aimed at elaborating methods of structural analysis of terminological forms; classification of means of special nomination as well as finding out trends and tendencies of their usage in various terminologies, various languages and various stages of development of terminologies; working out optimal patterns of term formation in concrete languages and subject fields, and in general, in laying out foundations for constructing optimal terminologies.

Functional studies (about 160 dissertations) dealt with the analysis of peculiarities of functioning of terms in various communicative situations: in scientific and technological texts as well as in systems of information and documentation, and also in fiction where terms often lose their terminological properties and transform into words of everyday language.

The studies in various *Fields of Application* of terminological principles - in regulating, forecasting and controlling development of terminologies; translation of terms; teaching terminologies as part of special education; terminography; elaboration of terminological data banks (now about 300 dissertations) lead to the development of a number of general and particular methodologies in these spheres of terminological activities and establishing a thorough theory of terminography.

Finally a new discipline named by the late Prof. O. Akhmanova "Cognitive Terminology Science" (perhaps it would be more precise to call it 'epistemologic terminology science') emerges. It views as the main object of study the problems of terminological representation of knowledge, the impact of choice of terms in the development of knowledge and culture, relations between philogeneses of terminologies and fields of knowledge, peculiarities of development of a terminological "world picture" in ontogeneses and all terminological aspects of philosophy of science, and also history of science, technology and general culture, as well as knowledge representation in the artificial intelligence systems. It comprises such approaches to terminological research as epistemology, psycholinguistics and sociolinguistics.

10. Conclusions and Recommendations

The preliminary investigation of terminological dissertations prepared in the USSR also showed certain draw-

backs in the current terminological research which are partly conditioned by the existing lack of coordination and tendencies towards greater autonomization of terminological research in national languages. First of all we should mention the abundance of the parallel and repeated studies of the same terminologies due to the absence of common information on the already done and on-going research. Many of the works have purely descriptive character and lack any deep analysis, concrete conclusions and recommendations or contain quite trivial conclusions. Some works are devoted to solving the already quite completely investigated and already solved problems. There is also an evident tendency towards unnecessary creation of new terms, serving sometimes as a cover for the absence of new ideas. The existing descriptions of terminologies are often characterized by incompleteness and diversity of data, making it very difficult to compare properties of various terminologies with the aim of working out a general typology of terminologies. To promote the development of a theory of terminology it is necessary:

- to generalize (in a number of summarizing works or special dissertations) from the results of descriptions already made of particular terminologies and research already accomplished;

- to identify subject fields and languages, terminologies of which are not yet properly investigated as well as aspects of study of these terminologies which were not given necessary attention;

- to establish a list of problems which should be considered as definitely solved;

- to elaborate a unified terminology of terminology science (currently a normative dictionary of Russian terminology of terminology science contains about 2,000 terms with definitions and English equivalents is being compiled);

- to outline the most promising ways of terminological research, to establish further aims of study and to promote new methods of investigation;

- to establish priorities in research and compile a list of the most promising or least investigated actual problems and directions of study;

- to work out a long-term program of recommended fields of study and lines of advance.

The most important problem at present is the co-ordination of terminological research invisaging the establishment of regional centres for terminology research and territorial distribution of subjects and themes of study taking into consideration both existing experience and scientific traditions.

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