



Univerzita Karlova v Praze
Filozofická fakulta
Ústav anglistiky a amerikanistiky

DISERTAČNÍ PRÁCE

k získání akademického titulu doktor v oboru Anglický jazyk

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Theory and Practice of Czech Bilingual Specialized Dictionaries

Školitel:

Datum státní doktorské zkoušky:

Datum odevzdání práce:

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12. 6. 2005

20. 7. 2006

V Praze, 2006

Poděkování

Ráda bych tímto poděkovala panu Prof. PhDr. Aleši Klégrovi, vedoucímu této disertační práce, za cenné rady a připomínky i za trpělivost, kterou mé lexikografické počínání provázel. Rovněž děkuji studentům oboru Angličtina pro komerční praxi na Západočeské univerzitě za ochotnou účast na uživatelském výzkumu, který je v disertaci popsán. Poděkování náleží i mému manželovi Danielovi za osobní i technickou podporu, kterou mi během vzniku této práce obětavě poskytoval.

V Plzni dne 26. června 2006

PROHLÁŠENÍ

Prohlašuji, že jsem tuto disertační práci vypracovala samostatně a použila jen pramenů, které cituji a uvádím v příložené bibliografii.

– Alice Tihelková

Handwritten signature of Alice Tihelková in cursive script.

Abstract

The thesis deals with the theory and practice of bilingual specialized lexicography, with special focus on the production of bilingual specialized dictionaries intended for Czech users. The main objective is to propose an original methodology for the compilation of Czech-English and English-Czech LSP dictionaries (with possible application to other foreign languages). The methodology aims at the introduction of the latest trends in pedagogical lexicography, as presented in the leading ESL dictionaries, into specialized lexicography. The thesis is complete with an original lexicographic project illustrating the individual points made.

The initial part of the thesis discusses of the main aspects and principles of the discipline of specialized lexicography, clarifying the basic concepts and comparing the state of research in the Western countries with the situation in the Czech Republic. This critical overview is followed by an analysis of the character of Czech bilingual specialized dictionaries based on a sample of 25 recently published dictionaries of a wide variety of subject fields. The main features of these dictionaries are established and their overall quality assessed, resulting in the presentation of a typology of their major shortcomings. The analysis is accompanied by the results of a preliminary user survey carried out in 2004 at the University of West Bohemia.

In combination with the state-of-the-art theoretical knowledge of pedagogical as well as specialized lexicography, the data gained from the analysis is used to form the framework of the methodology presented in the final chapter of the thesis. The recommendations, presented in such a format as to be accessible to a wide spectrum of Czech dictionary compilers, cover all the crucial aspects of the dictionary project: preliminary work, corpus selection, lemma selection, the choice of macrostructure, the treatment of grammatical, semantic, pragmatic and encyclopaedic information, the cross-reference structure and the dictionary outside matter. To apply a descriptive rather than prescriptive approach, a model is presented of three dictionary types: the unreduced, reduced and minimal dictionary. Although the unreduced (syntagmatic) dictionary, modelled on ESL dictionaries, is stated as the most suitable for the purposes of reception, production as well as translation, two more dictionary types of reduced complexity are proposed to acknowledge the varied character and resources of potential Czech lexicographic projects.

To put the principles laid down into practice, a model dictionary project is introduced in the Appendix section of the thesis. This original unreduced mini-dictionary of parrot-keeping (about 200 entries in each direction) is complete with all the relevant front matter components and contains a commentary on the whole compilation process.

The thesis introduces the bilingual dictionary as a utility product whose design should always be planned with respect to the competence (both specialized and linguistic) of the intended users, the character of the given terminology as well as the dictionary's function (reception, production, translation).

Abstrakt

Tématem předkládané disertační práce je teorie a praxe dvojjazyčné speciální lexikografie se zvláštním zaměřením na tvorbu dvojjazyčných odborných slovníků pro české uživatele. Hlavním cílem práce je vypracování původní metodologie tvorby česko-anglických a anglicko-českých odborných slovníků (s možnou aplikací i na další cizí jazyky), která představuje přenesení současných poznatků pedagogické lexikografie, prezentovaných v předních anglických pedagogických slovnících, do lexikografie speciální. Práce je doplněna vlastním lexikografickým projektem, na kterém jsou jednotlivé body metodologie prakticky ilustrovány.

Úvodní část práce, pojednávající o hlavních aspektech a principech speciální lexikografie, objasňuje základní pojmy z této disciplíny a srovnává stav výzkumu v zemích Západní Evropy se situací v České republice. Po tomto kritickém přehledu následuje analýza charakteru českých dvojjazyčných odborných slovníků, založená na vzorku 25 slovníků různých oborů vydaných po roce 1989. Analýza konstatuje jejich hlavní rysy, hodnotí jejich kvalitu a předkládá typologii jejich základních nedostatků. Doprovodnou část analýzy tvoří zpráva o předběžném uživatelském výzkumu odborných slovníků, provedeném v roce 2004 na Západočeské univerzitě.

Data získaná analýzou jsou v kombinaci s novými poznatky obecné i speciální lexikografie použita k vypracování metodologie tvorby dvojjazyčných odborných slovníků, prezentované v závěrečné části práce. V ní obsažená doporučení, předkládaná způsobem přístupným širokému spektru českých slovníkářů, pojednávají o všech klíčových aspektech lexikografického projektu: předběžném plánování, výběru korpusu, výběru lemmat, volbě makrostruktury, zpracování gramatických, sémantických, pragmatických a encyklopedických informací, systému odkazů a ostatních částech slovníku. Jelikož metodologie usiluje o deskriptivní přístup, je zde představen model tří možných typů slovníku: neredukovaného, redukováného a minimálního slovníku. Přestože neredukovaný (syntagmatický) slovník je označen za nejvhodnější pro účely recepce, produkce i překladu, metodologie představuje ještě další dva jednodušší typy slovníku, které berou ohled na různost výchozích podmínek i zdrojů potencionálních českých lexikografických projektů.

Předkládaná metodologie je poté prakticky aplikována na konkrétní lexikografický projekt – původní neredukovaný minislovník chovu papoušků (cca 200 hesel v obou směrech), začleněný do přílohové části. Slovník obsahuje kromě hesláře předmluvu, pokyny uživatelům i další komponenty a je opatřen podrobným komentářem o jeho vzniku.

Práce představuje dvojjazyčný slovník jako účelový produkt, který by měl vždy být plánován s ohledem na kompetenci (jazykovou i odbornou) cílového uživatele, charakter dané terminologie i zamýšlenou funkci (recepce, produkce, překlad).

List of abbreviations

Cz	Czech
Eng	English
ESL	English as a Second Language
IPA	International Phonetic Alphabet
<i>LDOCE</i>	Longman Dictionary of Contemporary English
L1	first (native) language
LGP	Language for General Purposes
LSP	Language for Special Purposes
L2	second (foreign) language
<i>MED</i>	<i>Macmillan English Dictionary</i>
<i>OALD</i>	<i>Oxford Advanced Learner's Dictionary</i>
w.	word

Contents

1	Introduction	10
1.1	Work objectives	10
1.2	Methods of work	11
1.3	Sources	12
1.3.1	Manuals dealing with specialized lexicography	12
1.3.2	Articles from journals and conference proceedings	13
1.3.3	Dictionaries as a primary source	15
1.3.4	Sources of the model dictionary	15
2	Specialized Lexicography: basic principles and practice	16
2.1	Specialized lexicography: past and present	16
2.1.1	Origins of specialized lexicography	16
2.1.2	The Aarhus School	17
2.1.3	Other prominent authors	18
2.1.4	Specialized lexicography in the Czech Republic	19
2.2	Specialized lexicography versus terminography	20
2.2.1	Clarifying the theoretical concepts	20
2.2.2	Practical implications	21
2.3	Key aspects of specialized lexicography	22
2.3.1	Terminology	22
2.3.2	LGP and LSP in specialized lexicography	25
2.3.3	Specialized dictionary functions	26
2.3.4	The bilingual specialized dictionary	29
2.3.5	Preliminary work	30
2.3.6	Corpus building and lemma selection	31
2.3.7	Specialized dictionary components	32
2.3.8	Specialized dictionary structures	34
2.3.9	The use of computers in specialized lexicography	36
3	Analysis of Czech-English and English-Czech specialized dictionaries	38
3.1	Background to the analysis	38
3.2	General character of the dictionaries analyzed	41
3.3	Analysis of dictionary components and structures	44
3.3.1	Analysis of the front matter	44
3.3.2	Analysis of the back matter	52
3.3.3	Analysis of the macrostructure	56
3.3.4	Analysis of the microstructure	61
3.3.5	Analysis of the cross-reference structure	80
3.3.6	Additional aspects of the dictionaries analyzed	81
3.4	Dictionary user research	86
3.5	Final evaluation of the sample	89

4	The methodology for the production of Czech bilingual specialized dictionaries	96
4.1	Background to the methodology	96
4.2	Preliminary considerations	97
4.3	Lexicographic selection	100
4.4	Design of the dictionary	104
4.4.1	The outside matter	104
4.4.2	Front matter	105
4.4.3	Back matter	107
4.5	Macrostructure	108
4.5.1	Systematic macrostructure	108
4.5.2	Alphabetical macrostructure	109
4.6	Microstructure: linguistic information	114
4.6.1	Information on spelling	114
4.6.2	Pronunciation	115
4.6.3	Linguistic labelling	118
4.6.4	Grammar information	119
4.6.5	Lexical syntagmatic information	124
4.6.6	Paradigmatic and other semantic information	127
4.6.7	Usage examples	130
4.7	Microstructure: encyclopaedic information	131
4.8	Cross-reference structure	132
4.8.1	Access structure	133
4.8.2	Page format	134
4.9	Proposed models for the production of Czech bilingual specialized dictionaries	135
4.9.1	The unreduced dictionary	136
4.9.2	The reduced dictionary	138
4.9.3	The minimal dictionary	139
4.9.4	Example entries for the L2-L1 (Eng-Cz) direction:	140
4.9.5	Example entries for the L1-L2 (Cz-Eng) direction:	141
5	Conclusion	142
A	A model English-Czech and Czech-English Dictionary of Parrot-Keeping	150
A.1	Background to the dictionary	150
A.2	Předmluva	156
A.3	Pokyny pro uživatele	156
A.4	Tabulka výslovnosti	160
A.5	Seznam použitých zkratk a značek	161
A.6	Tabulka symbolů	161
A.7	Seznam použité literatury	162
A.8	Anglicko-český slovník chovu papoušků	163
A.9	Česko-anglický slovník chovu papoušků	169
B	Extracts from the sample dictionaries	175
C	Examples of the questionnaires from the 2004 user survey	184

List of Tables

3.1	Parts of dictionary prefaces analyzed	49
3.2	User's guide components	51
3.3	Microstructure types in the sample dictionaries	58
3.4	Types of dictionary labels	65
3.5	Occurrence and examples of labels in sample dictionaries	66
3.6	Occurrence of morphological information in lemmata	67
3.7	Occurrence of morphological information in equivalents	71
3.8	Occurrence of encyclopaedic information in the sample	75
3.9	Presentation of collocations in sample dictionaries	77
3.10	Example of a protocol	87
3.11	Final evaluation of the sample dictionaries	95
4.1	Types and examples of linguistic labels in Eng-Cz and Cz-Eng dictionaries	118
4.2	Collocation needs based on dictionary user and use.	127

Chapter 1

Introduction

Since 1989, the Czech Republic has witnessed a great number of political, economic and social changes, resulting, among others, in an increased importance of English as the world's leading language. The natural outcome of this trend has been an unprecedented need for – and the subsequent production of – bilingual English-Czech and Czech-English dictionaries, both for general and special purposes.

As regards the latter group, the market has seen prompt publication of various reference works in the areas of business, law, medicine, engineering, computing, etc. However, not all of these dictionaries possess the qualities necessary for a practical, informative and reliable guide to specialized foreign-language usage. Some of them display various shortcomings and omissions (concerning access to the required equivalents, information on grammar and use, etc.), which make any of the purposes of a bilingual dictionary difficult to achieve. There are several reasons for these shortcomings, such as lack of lexicographic expertise, predominance of commercial interests at the expense of quality or hastiness of work to meet the demands of the market.

In addition, lexicography, including specialized lexicography, as a theoretical discipline has been largely neglected by Czech dictionary specialists, and, judging by the small number of publications, by Czech linguists as well. Although some recent specialized dictionaries show some improvement in quality as opposed to previous reference works, the overall situation shows signs of neglect. Therefore, specialized lexicography needs to be firmly established on the Czech linguistic scene and its results made accessible to individual dictionary compilers. Only then will it be possible to see the publication of specialized dictionaries of consistent quality, fulfilling a variety of user needs and contributing to the increased LSP competence of Czech users.

1.1 Work objectives

The thesis deals with the theory and practice of bilingual Czech specialized dictionaries, drawing on the theory of general and specialized lexicography as well as on the analysis of a wide variety of Czech lexicographic projects. The main objective is to present a methodology for the production of Czech bilingual LSP dictionaries reflecting the user-oriented approach to LSP lexicography combined with the latest trends in pedagogical lexicography as presented in the leading ESL dictionaries (*Oxford Advanced Learner's Dictionary*, *Longman Dictionary of Contemporary English*, *Collins COBUILD*, etc.). The presentation of the methodology is complemented by several other sections of the thesis, aimed at providing a theoretical background to the subject, analyzing authentic dictionary material and applying the conclusions drawn to a real dictionary compiled for the purposes of the present research.

The proposed methodology offers guidelines regarding the following aspects of dictionary compilation:

- preliminary considerations in the dictionary project

- lexicographic selection
- macrostructure
- microstructure, including linguistic and encyclopaedic information
- cross-reference structure
- outside matter

To make the methodology descriptive rather than prescriptive, a model is presented of three suggested LSP dictionary prototypes, the **unreduced**, **reduced** and **minimal** dictionary, to suit the resources and needs of individual compilers and users. The specifications for each prototype are stated, together with its scope of application as far as the basic dictionary functions (reception, production, translation) are concerned. While observing the descriptive standpoint, the methodology attempts to show that the unreduced (syntagmatic) dictionary fulfils all the three functions in the most complete way. To demonstrate this in practice, a small bilingual dictionary of a specialized field is included in the final section of the thesis, compiled on the basis of the author's own corpus of the subject field.

Although the conclusions drawn in the methodology concern primarily English-Czech and Czech-English dictionaries, the basic principles of the thesis can also be applied to other languages combined with Czech.

1.2 Methods of work

The thesis is based on a combination of theoretical and practical lexicography. Each of the sections has its distinct purpose and employs different modes of research. The initial section, called *Specialized lexicography: basic principles and practice* provides a theoretical background to the subject of the thesis. Drawing on authoritative lexicographic sources (see 1.3), the chapter gives a detailed report on the current state of research into the field of specialized lexicography. The discipline is defined against the more widespread *general lexicography* and the more technical *terminology*, the basic concepts are explained and the achievements of Western LSP lexicography are compared with the situation in the Czech Republic.

The theoretical background having been established, the following section provides an analysis of twenty-five selected Czech-English and English-Czech dictionaries. These have been selected with a particular intent in mind. First and foremost, an attempt was made to select dictionaries from as many different fields as possible to enable comparison of lexicographic practice across the whole spectrum. In addition, at least two (usually more) dictionaries of the identical field were selected where possible to reveal whether some common features can be established among them (e.g. whether it is true that technical dictionaries are poorer in grammar and collocations than, say, legal or commercial dictionaries).

The overall objectives of the analysis are as follows:

- To state the general features of Czech bilingual specialized dictionaries based on some pre-established categories (the amount of morphological and syntactic information, the inclusion of collocations, synonyms and context markers, the treatment of polysemy, the most frequent choice of macrostructure, the quality of the outside matter, etc.)
- To reveal potential differences among dictionaries of different fields (e.g. dictionaries of social sciences vs. technical subjects)
- To pinpoint the most common shortcomings of the dictionaries analyzed and to provide a typology of these shortcomings. This is done on the basis of the theoretical principles presented in the initial chapter and, in addition, on some user research conducted among university students.

The third major part of the thesis (Chapter 4) draws heavily on the previous two. Based on both the theoretical requirements introduced in the first part and the findings described in the second, the chapter represents the key part of the research. As mentioned in 1.1., the objective is to provide guidelines for the production of Czech-English and English-Czech specialized dictionaries. Bearing in mind that lexicography has been described as “the art of the possible”, the main criterion for the presentation of the recommendations is their *viability*. In other words, the guidelines are designed in such a way that dictionary compilers in the Czech Republic can make easy use of them in their individual projects. A compromise between theory and practice is attempted here – one which does not ignore the well-meaning voice of the theoreticians, yet does not at the same time lose sight of the practical character of dictionary preparation. Wherever the preferred decision does not seem unanimous, several possibilities are stated, each complete with the enumeration of strengths and weaknesses to give the lexicographer an opportunity of informed choice.

The final part of the thesis (Appendix A) puts to the test the results of the research described in the preceding chapters. To show how the guidelines work in practice, a model Czech-English and English-Czech dictionary is presented here, containing all the relevant front matter components besides the two word lists. The dictionary is accompanied by a short chapter commenting on the choices made during the process of its compilation.

The first and most difficult decision in the preparation of the model dictionary involved the choice of its subject field. The initial consideration was a dictionary of business or some technical field. However, these early ideas were rejected in favour of a field where some amount of personal experience could be employed to be able to carry out the correct lemma selection and provide adequate encyclopaedic information.

Owing to the author’s lifetime involvement in keeping, breeding and care of exotic birds, a decision was reached to prepare a dictionary of parrot-keeping (psittaculture), a subfield of the increasingly popular discipline of aviculture (bird-fancying). In addition to the personal experience and knowledge of the terminology of the area, another reason for this choice was the fact that no Czech-English and English-Czech dictionary of parrot-keeping (or, indeed, aviculture as a whole) exists on the Czech market, although the demand for one appears to be growing due to the increasing numbers of Czechs involved in the care and breeding of parrots. The methods of corpus and lemma selection as well as some specific problems connected with preparing the dictionary are discussed in A.1.

1.3 Sources

The sources of the research presented in the thesis are of several kinds, each related to a specific stage of the work. Although the thesis deals with LSP dictionaries, its writing would not have been possible without consulting a number of major contributions to *general* lexicography, as specialized lexicography draws heavily on it. Those consulted most often include the classical work *Manual of Lexicography* by Czech lexicographer Ladislav Zgusta [Zgusta 1971] and two other authoritative handbooks of dictionary-making, *Dictionaries. The Art and Craft of Lexicography.* by Sidney Landau [Landau 1989] and *Practical Lexicography. Principles and Methods of Dictionary-Making* by Bo Svensén [Svensén 1993]. These three major publications have served as a valuable source of information on dictionary macrostructures, linguistic labelling, treatment of syntactic information and the problems of equivalence.

1.3.1 Manuals dealing with specialized lexicography

The first type of literature dealing explicitly with *specialized* dictionaries, whether as a whole or in part, is represented by a number of authoritative manuals of specialized lexicography, all of them by West European, non-English authors. Out of these, the *Manual of Specialized Lexicography* [Bergenholtz and Tarp 1 1994] is probably the most significant one. Combining erudition with extreme readability, it covers all the key aspects of specialized dictionary-making. Its authors,

the Danish linguists Henning Bergenholtz and Sven Tarp, have long belonged among the leading European experts on specialized lexicography, having introduced a large number of innovative approaches into the field.

The only slight disadvantage of the *Manual* is the lack of detailed guideline-like recommendations for dictionary compilers. This is understandable given the pioneering role of the publication, whereby a great deal of theoretical clarification and description of the current lexicographic practice had to be carried out, leaving less space for concrete dictionary-making hints. However, it was the theoretical framework provided by the *Manual* that proved to be crucial for the present thesis.

A publication of a similar scope, yet more focused on individual practical solutions, is the German handbook *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbücher*, edited by Burkhard Schaefer and Henning Bergenholtz [Schaefer and Bergenholtz 1994]. Apart from similar theoretical issues as in the previous publication, it discusses some concrete choices to be made by a special lexicographer, e.g. the use of alphabetical vs. systematic macrostructure, selection of idioms, treatment of multi-word terms, the proportion of general vs. specialized language, etc. The advantage of this publication lies in its multiple authorship, presenting a wide variety of lexicographic approaches.

The third major publication of the manual type is *The Bilingual LSP Dictionary. Principles and Practice for Legal Language* by Danish author Sandro Nielsen [Nielsen 1994]. A revised version of the author's PhD thesis, the publication lays down the basic principles of compiling a bilingual specialized dictionary, the process being demonstrated on the example of a real English-Danish dictionary of contract law. Unlike the *Manual* by Bergenholtz and Tarp, Nielsen's work is far more concrete, addressing a large number of detailed solutions to be applied in the lexicographic project.

Admittedly, a great deal of the Nielsen's attention focuses on the formal aspects of dictionary design, such as the dictionary graphics and the arrangement and presentation of entry data, rather than on the treatment of linguistic and encyclopaedic information. Moreover, some unnecessarily complicated lexicographic terminology is applied to a series of regular dictionary elements, e.g. *integrated linear suprasegment*, *sinuous sublemma file*, *equivalent form realization item* or *single-class complex subarticle*. Despite being less reader-friendly than Bergenholtz and Tarp, Nielsen's handbook offers immensely valuable information on dictionary typology, user needs, lexicographic selection and problems of equivalence.

The last manual to have been utilized for the purposes of the thesis is *A Practical Guide to Lexicography*, edited by the Dutch author Piet van Sterkenburg [van Sterkenburg 2003]. Although originally as ambitious a project as the *Manual* by Bergenholtz and Tarp, Sterkenburg's guide cannot compete with the *Manual* in quality. While some contributions are well-written and informative, others speak more of the contributor's own narrow interests than of the overall situation in the particular area, as is the case of, e.g., *Design and production of terminological dictionaries* [Martin and van der Vliet 2003]. Despite that, a considerable amount of the information contained in this publication remains valuable for the present research.

Finally, to turn the attention from foreign to domestic contributions, an important source of information on specialized lexicography (here called *terminography*) is found in *Manuál lexikografie*, a handbook edited by Czech linguists Renata Blatná and František Čermák [Blatná and Čermák 1995], specifically in a chapter called *Terminografie* by Svatava Machová [Machová 1995], devoted to the production of Czech-English and English-Czech specialized dictionaries. It is practically the only major Czech contribution to the subject area, as will be shown in 2.1.4.

1.3.2 Articles from journals and conference proceedings

The second type of source material for the thesis is represented by articles from lexicographic journals, contributions to conference proceedings and individual chapters contained in publications on general lexicography. Although smaller in size than the manuals, these publications have yielded a wealth of valuable practical information regarding the current trends in specialized lexicography and concrete solutions applied to real lexicographic projects.

Out of the lexicographic journals, two have provided a number of useful articles: *Journal of International Lexicography* and the Danish-published *Hermes*. The former, however, is mainly focused on general and monolingual lexicography, so its relevance was not as great as expected. Far more relevant information was found in the volumes of proceedings of two major lexicographic conferences, *Euralex* and *Zürilex* conferences (see *Bibliography*). These contain contributions of lexicographers across Europe discussing their individual dictionary projects, many of them bilingual and specialized.

However, the most valuable source of practical information was found in a publication of German origin – the edition *Lexicographica Series Maior*, published every year or every two years since the 1980s. Some of the volumes of this series are mono-thematic, dealing with large projects such as dictionaries of medicine or a whole project of compiling a business dictionary, others consist of a number of shorter contributions discussing partial problems such as equivalence accuracy, pictures and diagrams in dictionaries, defining concepts, grammar in dictionary entries, etc. German-written contributions prevail in this series, testifying to the important role of German authors in specialized bilingual lexicography, although contributors from other countries have also participated in the compilation of *Lexicographica Series Maior*.

Out of the individual articles that have served as a valuable source material for the present thesis, several deserve mention. The first two have originated in the circle of Aarhus authors (see 2.1.3). The article by Henning Bergenholtz and Sven Tarp called “Two opposing theories: On H.E. Wiegand’s recent discovery of lexicographic functions” [Bergenholtz and Tarp 2003] discusses the principles of the user-oriented approach to dictionary production and the individual dictionary functions. The other Aarhus-related article, “Terminography and Lexicography: A Critical Survey of Dictionaries from a Single Specialized Field” by Henning Bergenholtz and Uwe Kaufmann [Bergenholtz and Kaufmann 1997] represents a significant contribution to the debate about the relationship between terminology, terminography and specialized lexicography, with practical implications demonstrated on an authentic dictionary prepared by the authors.

Other contributions are of a more practical character, dealing with various aspects of the preparation of specialized dictionaries. The need for more syntagmatic information in technical dictionaries is discussed in an article by Kurt Opitz called “The terminological/standardized dictionary” [Opitz 1999]. Here, the author demonstrates, among others, the need for consistent treatment of multi-word terms and phrasal items in technical dictionaries while making a strong claim in favour of the straight-alphabetical arrangement without nesting. Although he acknowledges the need for technical dictionaries to be user-friendlier than they have been so far, he warns against the excessive use of grammatical information to avoid confusing users. In contrast to the conclusions made by the present thesis, he regards e.g. the information on valency as redundant in a technical dictionary.

A series of contributions treat the problems of dictionary macro- and microstructures. In an article called “A Critical Comparison of the Macrostructure and Microstructure of Two Bilingual English-Spanish Dictionaries of Economics”, the authors P.A. Fuertes-Olivera and M. Velasco-Sacristian provide a analysis of the strengths and weaknesses of current specialized dictionaries based on a case study of two dictionaries of economics [Fuertes and Velasco 2001]. The division of a dictionary article into individual segments and the inner structure and contents of these segments are discussed by Roda P. Roberts in the article “Organization of information in a bilingual dictionary entry” [Roberts 2001]. Although written from the point of view of general lexicography, the article is equally relevant for specialized lexicography.

A number of contributions treat the crucial problems of equivalence in a LSP dictionary. The well-argued article by Geart van der Meer “How to Find the Correct Target Language Equivalent” [van der Meer 1998] presents pragmatic context markers as a suitable means of meaning discrimination and as a user-friendly alternative to complex linguistic labelling. The problems of terminological incongruency and lack of full equivalence are treated in an article by Susan Šarčević “Conceptual Dictionaries for Translation in the Field of Law” [Šarčević 1989].

Finally, a series of contributions to various conference proceedings introduce individual LSP dictionary projects, describing the process of their preparation from corpus selection to the macro- and micro-structural choices. An example is the article by Hans-Jürgen Stellbrink “The Dictionary

of the Gas Industry: A cooperative approach to dictionary making” [Stellbrink 2000], where a detailed treatment of the terminological background of the dictionary is provided, including the use of term banks as sources of concepts, software for terminology processing and the co-operation with industries to improve the quality of specialized dictionaries. References to other articles of similar subject matter (which cannot all be stated here due to the selective character of the present section) are provided in the *Bibliography*.

1.3.3 Dictionaries as a primary source

Different in nature from the above-mentioned handbooks of lexicography, the second category of source material is represented by dictionaries of two types. The first type includes twenty-five Czech-English and English-Czech specialized dictionaries covering a variety of fields, selected in order to analyze the real state of the practice of specialized lexicography in the Czech Republic. As demonstrated in 3.5, the quality of the sample dictionaries has been found to vary greatly. The shortcomings established, however, have provided valuable material for the proposed methodology.

The second type is represented by a number of leading monolingual ESL dictionaries, namely *Oxford Advanced Learner’s Dictionary*, *Longman Dictionary of Contemporary English*, *Collins COBUILD* and *Macmillan English Dictionary*¹. The dictionaries have been studied to elicit information on the latest trends in pedagogical lexicography with the intent of incorporating these into the planned methodology. The reason why the above-mentioned ESL dictionaries have been selected is the fact that they represent the absolute peak of lexicography today. This is not only due to their commercial potential, but also because they combine the use of state-of-the-art computer technologies with the latest knowledge and methods of linguistics (including the use of large corpora) and its progressive branches of computational linguistics and computational lexicography. Moreover, prominent linguists such as Randolph Quirk, John Sinclair, Alan Cruse and others have participated in their production, providing a guarantee of the highest expertise. Due to all these facts, very few bilingual dictionaries can offer comparable effectiveness in language coding and decoding.

1.3.4 Sources of the model dictionary

Finally, the last source of material for the present thesis has been selected with a view to compiling the model mini-dictionary intended to demonstrate all the aspects of the proposed methodology. Since the dictionary deals with parrot-keeping, the corpus material comprises a variety of popular articles (both printed and available on the Internet), scientific studies, monographs on parrots and one printed encyclopedia of aviculture. The details of these sources are discussed in A.1.

¹henceforth referred to as *OALD*, *LDOCE*, *COBUILD* and *MED*, respectively.

Chapter 2

Specialized Lexicography: basic principles and practice

There is nothing as practical as a good theory.

– Burkhard Schaefer

The purpose of the present section is to provide a theoretical background to the discipline of specialized lexicography, defined as “the branch of lexicography concerned with design, production and evaluation of specialized dictionaries” [van Sterkenburg 2003, 414]. First, its origins and some major achievements are outlined. Next, some contrasting views on the character of the discipline as held by prominent scholars are discussed. Finally, key concepts in specialized lexicography are dealt with, including general versus specialized language, dictionary functions, lemma selection as well as dictionary structures and components.

2.1 Specialized lexicography: past and present

2.1.1 Origins of specialized lexicography

The practice of preparing specialized dictionaries goes back several thousand years. As early as 2000 BC, scholars in the Middle East were preparing dictionaries commenting on different religions. However, the foundations of modern specialized lexicography were not laid until the 1930s, when Austrian scholar **Eugen Wüster** produced his pioneering work on terminology – the theory and practice of the creation, documentation and use of terms (see 2.3.9). Since then, the interest in specialized language has been steadily growing, as has been the need for dictionaries explaining this language to the increasing number of field experts and the interested public. Dictionary compilers, first using their linguistic judgment only, were beginning to make use of the emerging theory of LSP dictionary preparation.

Among the first scholars to put forward a consistent theory of specialized lexicography was **Ernst Herbert Wiegand**, a prominent German linguist based at Heidelberg University. In his numerous publications Wiegand has pursued the goal of establishing lexicography as a discipline in its own right, independent of linguistics. Apart from his interest in general lexicographic issues, Wiegand has written heavily on specialized lexicography (“Fachlexikographie”). In his major article *Was eigentlich ist Fachlexikographie?* [Wiegand 1988], which influenced a whole generation of lexicographers, he has provided a typology of specialized reference works, dividing them into **encyclopaedias** (“fachliche Sachwörterbücher”), **language dictionaries** (“fachliche Sprachwörterbücher”) and **encyclopaedic dictionaries**¹ (“fachliche Allbücher”). Whereas ency-

¹Also called “all-inclusive dictionaries”.

clopaedias provide factual information about the subject field, dictionaries give information on the language of the specific field and encyclopaedic dictionaries contain a combination of encyclopaedic and linguistic information. Wiegand himself tends towards multi-functionality of dictionaries and considers the last type of reference work preferable as far as the user's benefit is concerned.

2.1.2 The Aarhus School

The theories held by Wiegand remained unchallenged until a new generation of lexicographers arrived at the dictionary-making scene in the mid-1990s, represented by three members of the Centre for Lexicography at Aarhus School of Business in Denmark: **Henning Bergenholtz**, **Sven Tarp** and **Sandro Nielsen**. Established in 1996, the Centre aims at carrying out lexicographic research and providing consultancy in individual dictionary projects. Over the eleven years of its existence, its members have gained international reputation for introducing fresh ideas into specialized lexicography, especially with respect to dictionary functions and the user-oriented approach. The great advantage of the Centre is the fact that besides important theoretical work (over 300 papers), the staff are also involved in preparing real dictionaries; over thirty printed and electronic dictionaries have been produced to this day.

In general, the Aarhus authors share Wiegand's view that lexicography represents an independent discipline, not a subfield of lexicology. They also accept that the subject field of lexicography is dictionaries, man-made products, while the focus of linguistics is language, a system inherent in human beings. However, here the similarities end. Whereas Wiegand's theory looks at lexicography from the point of view of linguistics, the Aarhus lexicographers see a dictionary as a *utility product* designed to meet particular user needs [Bergenholtz and Tarp 2003, 171]. In the design of such a product, a crucial role is played by practical considerations based on the profile of the intended user as well as the situation of use.

To be able to implement the Centre's postulates and produce dictionaries catering for a variety of user needs, new concepts in specialized lexicography had to be developed. Much of this task was undertaken by Sandro Nielsen, a specialist in the area of bilingual law dictionaries. Nielsen's theoretical contribution consists, among others, in introducing several key concepts, including the **maximizing vs. minimizing dictionary**, the **communicative function of a dictionary** and **lexicographic information cost** (see 2.3.3).

In accordance with the above-mentioned rejection of the purely linguistic approach to lexicography, Nielsen defines a dictionary (printed or electronic) in terms of its major features [Nielsen 1999]:

- A dictionary is a lexicographic reference work compiled to fulfil one or more of its functions (its *true potential*).
- It contains lexicographic data supporting the functions.
- It contains lexicographic structures that combine and link the data in order to fulfil the functions.

In addition to dictionary typology and functions, Nielsen has focused his research on the dictionary cross-reference structure (also called "mediostructure"), having introduced the concept of function-related cross references. His findings regarding the role of cross references in specialized dictionaries are presented in a major paper *Mediostructures in Bilingual LSP Dictionaries* [Nielsen 1999].

Apart from being a theoretician of lexicography, Sandro Nielsen is also a practising lexicographer, having authored five specialized dictionaries (Danish-English dictionaries of law and accounting). In the field of lexicography, he represents a versatile scholar who has managed to combine theory with concrete translation strategies and succeeded in producing viable recommendations concerning the improvement of bilingual specialized dictionaries.

Of equal significance in terms of the new approach to specialized lexicography are two of Nielsen's colleagues from the Aarhus Centre, Henning Bergenholtz and Sven Tarp. These two linguists and practising lexicographers have gained acclaim through a number of ground-breaking

publications devoted to the preparation of specialized dictionaries, especially their handbook *Manual of Specialized Lexicography* [Bergenholtz and Tarp 1994], regarded as the most important contribution to the theory and practice of LSP dictionary production to this day. Thanks to their involvement in the practical dictionary-making process, Bergenholtz and Tarp have been able to create a number of important theories regarding the functions of dictionaries (i.e. text reception, production and translation). The theory they have developed together with Sandro Nielsen is often referred to **Aarhus School**. For a more detailed overview of the School's postulates, see [Bergenholtz and Tarp 2003].

2.1.3 Other prominent authors

Although the theories and guidelines put forward by the Aarhus School are of major importance to the present thesis as they primarily deal with bilingual dictionaries, other authors have also contributed to the theoretical framework of the thesis. These do not form any "school", but each represents a unique methodological standpoint.

To begin with, a number of authors have concentrated on the terminological aspect of specialized reference works, rather than on the user-and-use-based approach. Among them is **Fred W. Riggs**, a major contributor to the prestigious publication *Lexicography. Critical Concepts* edited by R.R.K. Hartmann [Hartmann 2003]. Riggs is well-known for his argument, presented in the article *Terminology and terminography: their complementarity* [Riggs 2003], that terminography should be considered as separate from lexicography, since these two disciplines have different objectives (see also 2.2). Although Riggs's goal is obvious – to work towards maximum accuracy of terminological description – his theories do not take into account the fact that terms and their equivalents need to be presented to the user in a practical and easily surveyable manner. Riggs's contribution, therefore, remains relevant to the area of terminology rather than the production of actual dictionaries.

When discussing the terminological aspect of dictionaries, the name of **Gerhard Budin** cannot be omitted. This Vienna-based expert in terminology, information sciences and epistemology is known for his lifetime effort to integrate terminology, information science and the so-called "linguistics of science" into a multidisciplinary activity which forms a part of what he calls *the Applied Philosophy of Science*. The aim of this umbrella discipline is to study the dynamics of scientific knowledge, information and communication, and to look for methods of research management, including computer-driven multilingual terminology databases, to aid research and co-operation of scientists worldwide. Among specialized lexicographers, Gerhard Budin is probably best-known for two of his classical works on terminology, co-authored with Helmut Felber and Sue Wright, respectively: *Terminologie in Theorie und Praxis* [Felber and Budin 1989] and *Handbook of Terminology Management* [Wright and Budin 1997]. These publications do not address the process of preparing dictionaries as such, but provide valuable insights into the ways scientific terminology is described and stored in terminological databases. In his writing, Budin draws on the experience in standardization work at the international (ISO) level.

As stated above, a major contribution to specialized lexicography has been made by German scholars. Besides E.H. Wiegand, at least one more name should be mentioned – that of **Burkhard Schaefer**, a reputable linguist from Bonn. Schaefer has devoted much of his scholarly work to communication in specialized language ("Fachsprachliche Kommunikation"). He is a key contributor to the major handbook *Fachlexikographie* [Schaefer and Bergenholtz 1994], a German counterpart to the *Manual of Specialized Lexicography*, compiled in Denmark. In the opening article of the handbook, he pleads for more intensive study of language for special purposes and the preparation of specialized dictionaries, as he finds the achievements in this area as unsatisfactory (with the exception of H.E. Wiegand, whose typology of specialized dictionaries, i.e. their division into "fachliche Sprachwörterbücher", "fachliche Sachwörterbücher" and "fachliche Allbücher" he adopts). In his publications, Schaefer focuses not only on theoretical issues (e.g. the principles of metalexigraphy), but also on the specialized language and lexicographic practice of individual fields; his major publication here is the detailed analysis of dictionaries of medicine, called *Wörterbücher der Medizin*, co-authored with Stephan Dressler [Dressler and Schaefer 1994].

Finally, speaking of dictionaries of individual fields, mention should be made of a unique project in specialized lexicography carried out by the German linguist **Franz Schneider** [Schneider 1998]. Published as part of the series *Lexicographica Series Maior* under the title of *Studien zur kon-textuellen Fachlexikographie: das deutsch-französische Wörterbuch der Rechnungslegung*, Schneider's monograph represents a sort of a "case study" in the preparation and realization of one concrete bilingual specialized dictionary, a German-French dictionary of accounting. The study describes the whole process of the dictionary's compilation, from the selection of the corpus through the lemmatization of terms to the treatment of collocations and other grammatical/lexical phenomena. It is an open invitation to the lexicographer's workshop, valuable in its honesty and attention to detail, due to which it can serve as a good textbook of (or at least a guide to) specialized dictionary production.

The list of prominent names and publications presented here is very brief. It is beyond doubt that many more authors would deserve to be mentioned, ranging from terminologists to practical lexicographers or metalexicographers. However, the intent of the present section was to indicate trends, not to provide a full description of the research field. More names and publications will be encountered later in the thesis.

2.1.4 Specialized lexicography in the Czech Republic

The previous section revealed that specialized lexicography is being paid a great deal of attention across Europe, with a number of smaller non-English speaking countries (such as Denmark or Austria) engaging more actively than ever in the study of bilingual LSP dictionaries. How does the Czech Republic compare with the European situation?

If we look at the theoretical output in the field of specialized lexicography in this country, we can see that very little research has been done (despite the undisputable achievements of Czech *general* lexicographers such as Ladislav Zgusta or František Čermák). When attempting to find some Czech articles or studies on the subject, we were presented with a strikingly small number of contributions. Practically the only substantial work on the topic is a study called *Terminografie* by Svatava Machová. This 20-page introduction into terminography is contained in *Manuál lexikografie*, a Czech monograph devoted to the subject of lexicography [Blatná and Čermák 1995]. However, the study dates back to 1995 and when we compare its findings to some recent results of the Aarhus authors [Bergenholtz and Tarp 2003], we can see that the gap of eight years is not an insignificant one. A series of changes in lexicographic work have taken place, and they are now waiting not only to be reflected by Czech lexicographers, but also put into practice in the form of quality multi-purpose dictionaries.

Another Czech contribution to specialized lexicography deserves to be mentioned – an electronic article called *Vybrané teoretické a metodologické problémy terminografie: poznatky z tvorby České terminologické databáze knihovnictví a informační vědy* [Schwarz 2003]. Its value does not consist so much in its theoretical section – which basically reiterates the principles stated by Machová – but in the practical part where some concrete terminographical problems and their solutions are discussed as part of a terminographical project. However, the project in question is only aimed at creating a terminological database; no mention is made of dictionaries.

Apart from these two articles, there remain very few domestic sources to draw on², prefaces and user guides of individual reference works belonging among them. However, even these opening parts of dictionaries, which – according to theoretical lexicography – should be written with great care and give thorough instructions how to work with the dictionary, seem to suffer from neglect. Out of all the dictionaries examined, only some provide an adequate user guide, introducing the user to such aspects of the dictionary as the macrostructure, headword types, arrangement of individual entries, terminological compound phrases or spelling. Similarly, as regards the preface, in many dictionaries it simply consists of five or six lines, giving very few details about the whole dictionary project. Therefore, vital information about the compilation process, intended users and dictionary functions as well as the identity and background of the compilers is often missing. The

²A preliminary study of the situation can be found in [Brabcová 2005].

whole scope of the neglect (and the notable exceptions) will be discussed in Chapter 3.

Despite the critical observations in the previous paragraphs, it needs to be pointed out that a number of recent Czech bilingual specialized dictionaries (to be analyzed in the following chapter) show a grasp of some of the modern LSP theories. This means that the new concepts in specialized lexicography as represented, for instance, by the work of E.H. Wiegand or the Aarhus School, are slowly beginning to take root in Czech lexicographic practice. The important task for Czech linguists and lexicographers is to provide theoretical publications of their own, which would reflect the special problems of Czech bilingual lexicography and serve as guidelines to the actual dictionary authors. General lexicography has a remarkable tradition in the Czech Republic – it is now time for specialized lexicography to be given similar attention.

2.2 Specialized lexicography versus terminography

To get nearer the nature of specialized lexicography, it is first necessary to deal with some disagreements among linguists surrounding the actual essence of the discipline.

2.2.1 Clarifying the theoretical concepts

The first problem area concerns very name for the activity of preparing specialized dictionaries. Besides the above-mentioned **specialized lexicography**, three other terms can be encountered in the literature available: **terminology**, **terminological lexicography** and **terminography**. To add to the confusion, different authors present different arguments as to which term is the only correct one. However, this debate is not merely an issue of selecting a better-sounding name – it is an issue of the fundamental concept underlying the discipline. According to a group of scholars represented by Eugen Wüster and Fred W. Riggs, *terminology* and *terminography* are practically the same discipline, defined as “the set of practises and methods used for the collection, description and presentation of terms” [Bergenholtz and Kaufmann 1997, 92]. This discipline is to be strictly distinguished from *lexicography*, although the two complement each other.

The first and most valid argument in favour of the separation is that terminology/terminography follows an onomasiological line, naming concepts, whereas lexicography is semasiological in nature, giving meanings of lexemes [Riggs 2003]. Other arguments are less pressing, but still much-quoted [Bergenholtz and Kaufmann 1997, 93]:

- Lexicography deals with general language, terminography exclusively with specialized language.
- Lexicography tends to use any native speakers as informants, while terminography uses only experts.
- Lexicography prepares dictionaries for lay people, terminography for field experts.
- Whereas lexicography is predominantly descriptive, terminography is prescriptive.
- While lexicography treats polysemous lexemes, there is no polysemy in terminography; however, there may be several terms to one concept.
- Terminography prefers systematic, not alphabetical macrostructure.

This strictly separatist approach (to be further discussed in detail) is countered by a lexicographic trend represented by Danish linguists Henning Bergenholtz and Sven Tarp, who contend that the similarities between lexicography and terminography are greater than the differences, and in some contexts the two disciplines are virtually interchangeable [Bergenholtz and Tarp 1994, 10-11]. The two authors prefer the term *LSP lexicography* or *specialized lexicography* when referring to dictionaries of specialized fields. As their views have made a significant contribution

to the theoretical background of the present thesis, the term *specialized lexicography* will be used henceforth.

The term *terminological lexicography*, which was probably coined as a compromise solution, is also used by some linguists, although it has now largely been replaced by the more recent *terminography*. By and large, the situation is rather confusing – so much so that the handbook *Practical Guide to Lexicography* makes the following statement: “Specialized lexicography is closely related to a discipline known as terminology. In fact, these disciplines have so much in common that the distinction between them can be rather fuzzy [...] there is no consensus among experts as to whether they actually constitute a single discipline or two distinct though closely related disciplines” [Bowker 2003, 155]. The fuzziness of the distinction is also borne out by two entries from the authoritative *Dictionary of Lexicography* by R.R.K. Hartmann and Gregory James, where *terminography* and *specialized lexicography* are defined respectively as:

terminography A complex of activities concerned with the design, compilation, use and evaluation of TERMINOLOGICAL DICTIONARIES. The term “terminography”, coined on the analogy of lexicology: lexicography :: terminology:terminography is tending to replace the older term “terminological lexicography” [Hartmann and James 2001, 139]

specialised lexicography A complex of activities concerned with the design, compilation, use and evaluation of specialised dictionaries. There is no uniform framework for this as the nature and scope of such reference works can range widely, from a brief GLOSSARY without definitions, through TECHNICAL DICTIONARIES ... to large-scale and standardized TERMINOLOGICAL DATABASES [Hartmann and James 2001, 129]

When searching for a satisfactory explanation of the difference between “terminological dictionaries” and “specialized dictionaries” in the corresponding entries, we find that the authors give none. The confusion thus remains unresolved.

2.2.2 Practical implications

Despite the persisting inconsistencies mentioned in the previous subsection, it is not the aim of the thesis to add to this theoretical debate. As our research is concerned with bilingual specialized dictionaries, a more practical approach will be sought. In reality, the authors of Czech-English and English-Czech specialized dictionaries do work that is more lexicographic than terminographical in nature. Rather than find terms for concepts from their field, they seek foreign-language equivalents for terms already established, or source language equivalents for already existing foreign-language terms. Naturally, a situation may arise when a new term has to be invented due to a gap in the source or, more rarely, target language vocabulary. However, most of the work is concerned with stating the meaning of a word rather than with providing a systematic description of a conceptual field. As a consequence, the term “specialized lexicography” is found preferable when referring to bilingual dictionaries.

In addition to the previous argument, there is another reason why the above-mentioned dictionaries are to be considered as works of lexicography. Unlike in the long-established practice of compiling specialized dictionaries as bare lists of terms complemented by their precise equivalents, today’s linguists at the cutting edge of modern specialized lexicography claim that a good LSP dictionary should also provide information on the use of the individual terms. Information on morphology, verb patterns and collocations is gradually finding its way into modern dictionaries (see 3.3.4). To understand why lexicographic – not only terminographical – expertise is needed to give users dictionaries of real quality, let us examine some entries from two different Czech specialized dictionaries. The first example comes from a Czech-English and English-Czech dictionary of forestry [Horák 1999, 306]:

zasadit (vysadit) set

The dictionary, otherwise excellent from the terminological point of view, fails to give any information on grammar or use. However, Czech users producing texts in English would greatly benefit from the inclusion of grammar, in this case irregular forms (*set – set*), collocations (*set a tree*) and paradigmatic information (*to plant*).

The second example has been taken from an English-Czech dictionary of sports. The dictionary is arranged systematically according to individual disciplines and the author, probably a sports expert with some knowledge of English, makes every effort to give correct equivalents and explain unfamiliar culture-dependent terms. In an attempt to help the user with grammar, the author uses a system of self-made labels clarifying some grammatical categories. Thus, for instance, the entry of the verb *feed* reads [Heřmanský 2003, 228]:

feed [fi:d] s př (fed-fed [fed]) přihrávat, zásobovat (spoluhráče) přihrávkami

As can be seen, the author has adopted a user-friendly approach in informing on the pronunciation and morphology of the verb. However, what is the user supposed to make of the label “s př”? To find the answer, the list of abbreviations has to be consulted:

s př sloveso přechodné transitive verb

To a linguist, the information is absolutely clear. However, bearing in mind that the average user of the dictionary is likely to be a sportsman or a physical education student, not a linguist, can we be certain that the category of transitivity will be familiar and thus useful to him/her? A skilled lexicographer would have a clear idea of user needs, and would either leave the information on transitivity out, or, alternatively, compile an initial user guide with a brief explanation of the dictionary grammar.

To summarize, for a specialized bilingual dictionary to serve its purposes (reception of a foreign language and production in a foreign language) in a satisfactory way, a lexicographer with a good linguistic background should be included in the dictionary project. Through his/her involvement, and provided the user needs are appropriately considered, the dictionary stops being solely a work of terminography and becomes an undertaking of true specialized lexicography.

2.3 Key aspects of specialized lexicography

The aim of the present chapter is to present the most basic aspects of specialized lexicography, without which the discussion of LSP dictionary methodology would not be possible. The areas discussed range from some general features (e.g. specialized versus general language in LSP dictionaries) to concrete dictionary components and structures.

2.3.1 Terminology

Out of all disciplines, specialized lexicography probably owes most to **terminology**, although the input of linguistics and general lexicography is of major significance as well. As mentioned in 2.1.1, the discipline was pioneered by Austrian scholar Eugen Wüster, the founding father of normalization. The most prominent terminologists of today include, among others, Fred W. Riggs, Gerhard Budin, M. Teresa Cabré and Juan C. Sager, author of the acclaimed handbook *A Practical Course in Terminology Processing* [Sager 1990].

Although some experts regard terminology as an independent discipline, the Spanish terminologist Juan C. Sager argues that it is in fact more of an *activity* than a subject of its own. This activity is inevitably interdisciplinary in character, borrowing from such fields as semantics, logic, ontology, philosophy of science and information science.

Terminology can be briefly defined as “the study of and the field of activity concerned with the collection, description, processing and presentation of terms, i.e. lexical items belonging to

specialized areas of usage of one or more languages” [Sager 1990, 2]. Although it aims at the maximum precision of the concepts described, *terminology* itself is ambiguous as a term, referring to three different concepts at the same time. Thus, under *terminology*, we can understand the following [Sager 1990, 3]:

- The set of practices and methods for the collection, description and presentation of terms.
- A theory explaining the relationships between concepts and terms.
- A set of terms of a particular subject field

Terminology work can be said to consist in allocating terms to concepts. **Concepts** are mental constructs or units of thought which may be used in the classification of individual objects, both physical and abstract. Essentially, terminology does not deal with general concepts, but describes specialized concepts representing objects within a specialized field (the sets of terms standing for the concepts are called **terminologies**). A concept can be understood in terms of its **intension**, i.e. a set of its characteristic features, and **extension**, i.e. the set of objects that it represents.

Terms are the representations of concepts by linguistic means. Unlike general words, they have precise, unambiguous meanings. They are intellectual and notional in character, lacking expressiveness present in general language. According to [Machová 1995, 138], the boundary between “terms” and “non-terms” is rather fuzzy, and it can be said that almost each noun represents a term in a least one existing subject field. It is, therefore, advisable to regard as a term any lexical unit with a clearly defined notional meaning that is repeatedly used in LSP texts (i.e. in the interpersonal communication of a certain social group).

Apart from their clearly defined content, terms differ from general words in the reduced amount of arbitrariness. Whereas in general language the arbitrariness of the sign is almost complete, special language tends to make the principles of designation systematic and allocate terms according to some pre-set principles. In addition, while general language is rich in phenomena such as polysemy, homonymy and metaphor, specialized language strives to eliminate these. However, this is impossible to accomplish fully, as there are more concepts than terms in most specialized fields, and, furthermore, some terms are visibly based on metaphor.

A new term created to designate an existing or, more frequently, new concept is a type of neologism and is called a *neoterm* [ISO 2000]. Due to the importance of term creation, guidelines have been produced by ISO (The International Organization for Standardization) to bring consistency into the creation process. According to the ISO document R 704, new terms should comply with the following criteria [ISO 2000, 26]:

- **Transparency.** The meaning of the term should be visible from its morphology.
- **Consistency.** The term should not be arbitrary, but fitting into a coherent terminological system corresponding to the concept system.
- **Appropriateness.** The selected term should be in accordance with the familiar, established patterns of the language community. Vague, ambiguous or unnatural-sounding terms should be avoided.
- **Linguistic economy.** The term should be concise to avoid ellipsis.
- **Derivability.** Preference should be given to terms that allow easy derivation (e.g. formation of adjectives, conversion, etc.).
- **Linguistic correctness.** The selected term should conform to the phonological and morphosyntactic norms of the language concerned.
- **Preference for native language.** Terms from the native language should be given preference over foreign loans where possible

These criteria are stated here because they also apply to the work of a bilingual specialized lexicographer in search of a suitable new term due to a gap in the terminology of a given language.

Besides naming concepts, a key process in terminology is *standardization*. It consists in users reaching a mutual agreement to use a particular term in specific circumstances. Standardization differs from naming in that it comes into play at a later stage, when inconsistencies in the names created have arisen and there is a need to eliminate alternatives by choosing a single term. The instruments of standardization are of various kinds, from nomenclature commissions in individual countries to the International Organization for Standardization (ISO), which issues recommendations for standardization procedures.

Standardization has at its disposal the same methods and possibilities as its preceding stage, the naming of concepts. These possibilities include [Sager 1990, 120-121]:

- **redefinition of words** (most often restriction of the range of denotation, such as in *expectation*, *variance*, *filter*, etc.)
- **redefinition of existing terms** (usually taking place in social sciences, which are conceptually less stable; e.g. the redefinition of words like *culture*, *society*, *class*, etc.)
- **derivation** (utilizing the derivational affixes of a sublanguage or general language)
- **composition** (creation of complex terms, such as *hard disc*, *alpha male*, *target cost*, etc.)
- **borrowing** (importing foreign terms, often along with foreign concepts, e.g. *Gestalt*, *Zeitgeist*, etc.)
- **compression** (reduction of complex terms for economy' sake, e.g. *quasar*, *radar*, *JIT* for *just-in-time engineering*, etc.)

The advantage of standards is that they make communication among experts faster and easier by providing common agreement of reference. On the other hand, by prescribing the usage of terms and ruling out alternatives, standardization restricts the natural creativity of language. The unanimity of communication, therefore, comes at the price of sacrificing the aesthetic, emotive and creative aspects of language use. In addition, it remains open to question to what extent terminologists, who are more likely to be engineers, translators and computer specialists than linguists or lexicographers [Hartmann and James 2001, 140], are successful in their prescriptive efforts in real instances of LSP use.

Until the recent decades, most of terminological work concentrated on defining concepts, their mutual relationships and the correctness of the allocated terms. In addition, a great amount of attention was paid to the structure of conceptual systems and the ways of their representation. Nowadays, however, the focus of terminology is shifting towards computer-aided terminology processing and the creation of terminological databases (called "term banks") which codify terminological system across various subject fields and languages³. A term bank can be defined as:

"A collection, stored in a computer, of special language vocabularies, including nomenclatures, standardized terms and phrases, together with the information required for their identification, which can be used as a mono- or multilingual dictionary for direct consultation, as a basis for dictionary production, as a control instrument for consistency of usage and term creation and as an ancillary tool in information and documentation." [Sager 1990, 169].

Probably the best-known European term bank is EURODICAUTOM, a multilingual and interdisciplinary computerized database managed online by the language and computer services of the European Union. Other prominent term banks include LEXIS, TEAM, NORMATERM

³A detailed model of a record in a term bank can be found in [Sager 1990, 144]

and TERMDOK. However, terminological databases are also increasingly used by the commercial sector, especially by multinational companies such as Siemens AG and others.

In addition to term banks, mention must also be made of the so-called **ontologies**. The term “ontology” has been adopted from philosophy, where it denotes a systematic account of the universe. In the field of knowledge management, an ontology can be described as a formal definition of a body of knowledge, or, as an expert on ontologies T.R. Gruber puts it, “an explicit specification of conceptualization” [Gruber 1993].

Ontologies consist of computer-usable definitions of basic concepts and their relationships related to specific domains (i.e. areas of knowledge such as medicine, mechanics, financial management, property business, etc.). In a way, ontologies resemble dictionaries or glossaries, but possessing greater detail and structure that enable the computer processing of their contents. They are accessed by individuals, databases as well as applications that need to share domain information. Some of the well-known ontologies include SUMO (The Suggested Upper Merged Ontology), SUO WG (Standard Upper Ontology Working Group) and SENSUS. There are also a number of Internet pages dedicated to the building and application of ontologies, among them Ontology.Org, Semantic Web and OpenCyc.org.

To conclude, terminology as a discipline concerned with term management has made a major contribution to the development of specialized lexicography, which also has specialized terms as its basic source material. The automated terminological resources such as terminological databases or ontologies can serve the lexicographer as banks of standardized terms or defined concepts to be selected for his/her dictionary. For more information on terminology, its computer-aided processing and storage see [Sager 1990]. For the discussion of terminology with reference to Czech practice, see [Poštolková et al. 1983] and [Sochor 1955].

2.3.2 LGP and LSP in specialized lexicography

One of the characteristic features of specialized dictionaries as opposed to general dictionaries is that they overwhelmingly consist of specialized terms, not general words. Indeed, many theoreticians claim that an ideal specialized dictionary should entirely consist of these specialized terms. In his study of LSP lexicography, Bergenholtz summarizes the arguments of a series of lexicographers (Dubois, Rey, Picht and Thomas) in the following rule: “Unlike lexicography, terminology deals solely with LSP language” [Bergenholtz and Kaufmann 1997, 92].

The division between general and specialized language is one of the key themes of LSP research. However, there is no agreement of opinion as to their mutual relation. Four possible models are traditionally stated:

- Specialized language is a subset of general language.
- General and specialized language are equal, yet discrete areas of vocabulary.
- General and specialized language are predominantly discrete areas of vocabulary, but there is a zone of overlap.
- General language is a subset of specialized language.

Other possible models could be – and have been – suggested. However, they do not provide a satisfactory answer to the basic problem of specialized lexicography: Does the LSP text also contain some LGP elements? Bergenholtz has attempted to provide a preliminary answer by researching fifteen specialized dictionaries present in his library. By examining their word lists, he has pinpointed three kinds of lemmata selected for LSP dictionaries [Bergenholtz 2 1994, 293]:

1. Fachtermini (“LSP terms”)
2. Zweifelsfälle (“doubtful cases”)
3. Nicht-Fachtermini (“non-LSP terms”)

To illustrate this practically, in an English-Danish technical dictionary, the above-mentioned categories would include the following lemmata:

- **LSP terms:** hyperbolic position line, shell-end mill, grain side, hexaldehyde
- **doubtful cases:** hemisphere, principal ingredient, chopping, semicircle
- **non-LSP terms:** hammer, horizon, cave, rancid, malicious damage, stick-up

Bergenholtz also provides a quantitative evaluation of the three categories as represented in the fifteen dictionaries researched, stating the percentage of LSP terms, non-LSP terms and doubtful cases for every dictionary. If we add the figures for each type of term and divide the result by fifteen (the number of his dictionaries), we obtain the following approximate ratio for an average LSP dictionary:

1. LSP terms: 58%
2. LGP terms: 32%
3. doubtful cases: 10%

The above-mentioned figures show that specialized dictionaries are by no means composed of LSP terms only, as some theoreticians assume or would like to assume. Lexicographic practice shows divergence from theory in this aspect, making general terms (as well as terms from the “fuzzy” borderline between LGP and LSP) an integral part of specialized dictionaries. Therefore, claiming that specialized dictionaries consist exclusively of LSP terms would be ignoring the reality of practical lexicography ⁴.

2.3.3 Specialized dictionary functions

Every specialized dictionary is prepared with regard to the type of user it should serve and the type of function(s) it should fulfil. The idea that the needs of the user should play a major role in dictionary design is not new; references to intended users have been appearing in the prefaces of dictionaries for centuries. However, it was not until the twentieth century that a coherent theory of dictionary functions according to user needs was put forward. Drawing on the work of E.H. Wiegand, L.V. Ščerba and F.J. Hausmann, the theory was developed by three Aarhus authors, Henning Bergenholtz, Sven Tarp and Sandro Nielsen.

The Aarhus “functional theory of lexicography” draws on the premise that dictionaries are utility products made in order to satisfy certain human needs. These needs are never abstract; they are always linked to a specific situation. Therefore, the beginning of any lexicographic work involves creating a user profile and a typology of user situations in which the dictionary may be consulted. The creation of the user profile is accompanied by asking and answering several key questions [Bergenholtz and Tarp 2003, 173]:

- What is the users’ native language?
- At what level do the users master their native language?
- At what level do the users master the foreign language?
- What is the level of the users’ general encyclopaedic knowledge?
- What is the users’ knowledge of the subject field of the dictionary?
- At what level do the users master the subject field in the foreign language?

⁴For possible reasons why general terms are included in LSP dictionaries, and for the discussion of LSP and LGP in Czech bilingual dictionaries, see Chapter 3.

According to the level of encyclopaedic knowledge stated in the questions above, users can be divided into *experts*, *semi-experts* and *non-experts*. While experts are users trained in the given subject field, possessing an extensive knowledge of it, non-experts lack both the training and the knowledge; they are usually members of the interested public or translators without the necessary LSP background. Semi-experts occupy a middle position, having some knowledge of the field, but lacking the formal training; they are usually students, LSP translators and experts in the neighbouring fields.

However, considering users from the point of view of their encyclopaedic knowledge is only one part of the problem. In addition to this, different users can display different levels of language competence. Thus, an expert in engineering can have a very poor command of English, while a LSP translator, not very knowledgeable in engineering, may speak excellent English. All these things need to be taken into consideration when deciding which information to include in the dictionary entry.

The theory of dictionary functions as put forward by the Aarhus lexicographers (who obviously draw on older theories, especially those of Wiegand and Hausmann) distinguishes between two types of function: so-called *knowledge-oriented* and *communicative* functions [Bergenholtz and Tarp 2003, 173-176]. Knowledge-oriented functions correspond to the type of situation where the user wants to obtain some additional information, either of encyclopaedic or linguistic character, as part of a learning process (e.g. when wishing to enhance his/her English vocabulary). Communicative functions, on the other hand, arise in situations when there is some communication, written or oral, going on between two and more persons, and the lexicographer intervenes only indirectly through the dictionary consulted.

The most frequent communicative functions include the reception of texts (a so-called *passive* or *decoding* function) and the production of texts (*active* or *encoding* function). Some lexicographers, including the Aarhus team, distinguish one more type – the function of *translation* – while others regard it simply as a type of reception or production, depending on the source/target language. A strong argument in favour of three instead of two categories involves the difference between production in and translation into a foreign language. Whereas a user producing a L2 text can select from a variety of familiar formulations, a translator requires precise equivalence, which makes additional demands on the extent of linguistic and encyclopaedic information to be provided by the dictionary (see below).

Each type of the stated functions can have either the native or the foreign language as its target language. Accordingly, each type requires different kind of linguistic and encyclopaedic information to be provided by the lexicographer. Included below is the typology of functions and the corresponding type of information required, as stated in [Bergenholtz and Tarp 2003, 24]:

1. native language production

- orthography, gender, pronunciation, irregularity, collocations, usage information
- standard, field label or brief explanation

2. native-language reception

- word class, gender, pronunciation, irregularity
- encyclopaedic note

3. foreign-language production

- orthography, gender, pronunciation, irregularity, collocations, usage information
- standard, field label or brief explanation

4. foreign-language reception

- word class, gender, pronunciation, irregularity
- translation equivalent

5. translation into the foreign language

- on the native language: word class, gender, pronunciation, irregularity
- on the foreign language: ortography, gender, pronunciation, irregularity, collocations, usage information
- translation equivalent
- degree of equivalence
- standard, field label or brief explanation

6. translation from the foreign language

- on the foreign language: word class, gender, pronunciation, collocations, irregularity
- on the native language: ortography, gender, pronunciation, irregularity, collocations, usage information
- translation equivalent
- degree of equivalence
- standard, field label or brief explanation

It is obvious that for the purposes of the present thesis, only the last four functions apply, as they are relevant to bilingual dictionaries. As dictionaries rarely have a single function (mostly for commercial reasons), the lexicographer has to combine the information required by individual functions in a single dictionary. Thus, for instance, an English-Czech LSP dictionary, primarily serving a passive function (reception of English), can also contain information relevant to production in or translation into English. Such is the case of a English-Czech dictionary of business, finance and law, whose microstructure contains, besides collocations, important information on syntax [Kalina et al. 2001, 45]:

agree souhlasit, vyhovovat, kladně přijmout, dohodnout se, sjednat, být v souladu

- a. on the plan* dohodnout se na plánu
- a. on the terms* dohodnout se na podmínkách
- a. the budget* schválit rozpočet
- a. the price* schválit cenu
- a. to an offer* přijmout nabídku
- a. to differ* konstatovat rozdílnost názorů
- a. to resign* souhlasit s odstoupením
- a. to the plan* souhlasit s plánem

This combination of different functions, resulting from practical considerations, can be regarded as an appropriate solution where the market for specialized dictionaries is relatively small, as is the case of the Czech Republic.

The last aspect of dictionary functions and the user-oriented approach to be dealt with is the **information cost**, mentioned in 2.1.2. The term, coined by Sandro Nielsen, describes the difficulties and inconveniences that the user feels to be experiencing when consulting a dictionary [Nielsen 1999, 11], i.e. the time and effort spent assimilating the information offered by the dictionary. Among such inconveniences belongs, for instance, the use of various abbreviations and symbols to save space. Specialized dictionaries, in particular, are often prone to such questionable space-saving strategies, but even in some *general* dictionaries the information cost can be rather high. Consider, for instance, this entry from an earlier edition of *OALD* [Hornby 1989, 1162]:

shake /ʃeɪk/ *v* (pt **shook** /ʃuk/, pp **shaken** /'ʃeɪkn/) **1** (**a**) [La, I, Tn, Tn.p, Cn.a] **sb/sth** (**about/around**) (cause sb/sth to) move quickly and often jerkily from side to side or up and down

This entry, although giving valuable information on morphology and syntax, displays high information cost, as there are a large number of abbreviations which the user has to check against the user's guide and a verb pattern scheme on the back cover. It is interesting to observe how the information cost was reduced in a later edition [Hornby 2000, 1175]:

shake /ʃeɪk/ *verb, noun*

■ *verb* (**shook** /ʃuk/ **shaken** /'ʃeɪkn/)

OBJECT/BUILDING/PERSON **1** to move or make sb/sth move with short quick movements from side to side or up and down [V] *The whole house shakes when a train goes past* ◇

[VN] *Shake the bottle well before use.* ◇ *He shook her violently by the shoulders.* ◇

[VN-ADJ] *She shook her hair loose.*

Opposed to the category of information cost is **information value** – the benefit the user gains by consulting the dictionary. Information value should always exceed information cost in a dictionary of good quality.

To sum up, the way a specialized dictionary is used runs along two axes, one represented by the dictionary user and the other by the dictionary use. Dictionary users can be divided into experts, semi-experts and non-experts, each group requiring different kind of information about the items lemmatized. Three basic types of dictionary use (function) are distinguished – reception of text (passive use), production of text (active use) and translation of text. Again, each of these functions requires a specific kind of grammatical and encyclopaedic information. It is the task of the lexicographer to ascertain the needs related to the dictionary user and use, and plan the micro- and macrostructure of the dictionary accordingly. All the planning should be performed with a view to keeping the lexicographic information as low as possible to enable the user to obtain the desired information with minimum effort.

2.3.4 The bilingual specialized dictionary

The previous subsections have discussed some basic problems of specialized lexicography in general. However, the present thesis is concerned with only one type of specialized dictionary, the bilingual dictionary⁵. Therefore, its characteristic features need to be dealt with.

First of all, a distinction must be made between **culture-dependent** and **culture-independent** bilingual LSP dictionaries [Bergenholtz and Tarp 1 1994, 60-65]. Culture-dependent dictionaries cover subject matter related to the lexicographer's own culture, which has historically and culturally developed some characteristic features that may be different from those of other cultures. Dictionaries belonging to this category include such areas as economics, law, politics and other social sciences. On the other hand, culture-independent dictionaries are similar in character across countries, since the subject matter does not change with language communities. Prototypically, such dictionaries cover the fields of natural sciences and technology. The conclusion to be drawn from this distinction is that culture-dependent dictionaries rely more heavily on the skills of the lexicographer, requiring additional information in the form of definitions, encyclopaedic knowledge and exemplification.

An important aspect of the bilingual dictionary, closely connected with the problem of culture dependence, is **equivalence**. As opposed to the monolingual dictionary, whose purpose is to give both encyclopedic and linguistic information, a bilingual dictionary is designed to provide information that is overwhelmingly linguistic in character. Rather than imparting the knowledge of the subject field (which is what monolingual dictionaries do), its role is to provide language equivalents for the purposes of understanding or producing a text in the foreign language.

The problem of equivalence has been given much attention in lexicography, both general and specialized (for systematic treatment of the equivalence of lexemes see [Čermák 1995, 238-240]). It is commonly acknowledged that there are different degrees of equivalence, usually subsumed

⁵Multilingual dictionaries are disregarded in the thesis, as they demand different lexicographic strategies, and their usefulness is limited due to the space-saving requirements.

into three types: **full**, **partial** and **zero equivalence**. In general dictionaries, full equivalence is regarded as rare, and partial equivalence prevails. For specialized dictionaries, in contrast, full equivalence represents the norm, as the items lemmatized are *terms* with very precise meanings. We could even say that anything less than full equivalence is undesirable in LSP dictionaries.

To be realistic, however, even specialized bilingual dictionaries cannot avoid instances where the equivalent is not explicit. This occurs especially in the above-mentioned dictionaries covering culture-dependent fields, in which the target language may be unfamiliar with some source-language concepts and vice versa. Where the lexicographer is faced with the non-existence of an equivalent, a substitute solution must be found. To state that “the equivalent does not exist” is the lexicographer’s failure to deal with the terminological gap. As Czech linguist František Čermák puts it, “Intranslatability does not exist, only the limited knowledge of the lexicographer. The problems should not be swept under the carpet, but solved using a good example and a context, provided they cannot be generalized as a meaning” [Čermák 1995, 246].

In the case of specialized bilingual dictionaries, lack of equivalence can be dealt with by providing encyclopaedic notes, explanatory translations or constructed translations. Encyclopaedic notes are sufficient where the dictionary is primarily aimed at production. However, having said earlier that such “pure” dictionaries are a rarity in so-called small languages, an attempt at translation should be made. If the lexicographer decides to use a constructed translation (i.e. coin a new term), he/she should consult with field experts whether the term selected is appropriate or whether loaning the word from the foreign language in question should be considered. This is especially true of technical dictionaries, such as those of information and computer technology.

The last problem to be addressed in this introduction to bilingual specialized dictionaries is **bidirectionality**. Specialized dictionaries produced for speakers of small-language communities are often designed as bidirectional (an example would be a Czech-English and English-Czech dictionary of ecology). The two directions can be contained in a single volume, such as in [Hájková et al. 1998], or they can be published in two different volumes, like [Bažant et al. 1 1992] and [Bažant et al. 2 1992]. Sometimes the two directions form a whole due to the identical lemma selection, while in other cases they represent two independent dictionaries based on independent choice of terms. However, in both cases it needs to be borne in mind that each direction has its specific requirements regarding the information to be provided. While the **L2>L1** (foreign language> native language) direction involves going from the unknown into the known, requiring information that would reliably link the foreign term to an existing one in the native language, the **L1>L2** direction means going from the known into the unknown, thus demanding extra grammar and usage information enabling confident production in L2.

To summarize, the key aspects of a bilingual specialized dictionary include culture dependence, equivalence and bi-directionality. Each of these aspects puts pressure on the lexicographer to provide information which is both precise and in accordance with the given dictionary type. While culture-dependent bilingual dictionaries are more demanding to design in terms of equivalence, L1>L2 dictionaries require more information on grammar and use.

2.3.5 Preliminary work

Although every lexicographer has his/her own preferred way of collecting and processing the terminological material for a dictionary, recent metalexigraphic research has been calling for a consistent and systematic approach to dictionary planning and realization. The actual lemma selection should be preceded by careful consideration of the intended dictionary functions and user requirements. Furthermore, a systematic classification of the subject field should be carried out to ensure that all the relevant terms are included.

The above-mentioned user requirements are nowadays increasingly ascertained by means of various **user surveys**. Using questionnaires, interviews and protocols, informants (who should include potential users of the planned dictionary) are encouraged to state what kind of information, both linguistic and encyclopaedic, they would benefit from in the dictionary. The practice of user surveys is becoming very popular in the lexicographic world of today, and will be dealt with in more detail in 3.4

The user needs having been established through the survey, the lexicographer now needs to familiarize himself/herself with the field, delimiting its boundaries and drawing up a classification of the field(s) to be covered, with all the individual subdivisions. This can, for instance, be done in the form of a tree diagram that captures the conceptual system of the field. Alternatively, a more elaborate three-stage procedure, proposed by [Bergenholtz and Tarp 1 1994, 83–85], can be adopted:

1. **An external subject classification.** The lexicographer draws up a sketch of the systematic arrangement of the subject field, delimiting it against the related fields. The purpose of this stage is to exclude any redundant material that does not fall within the delimited subject area, and to make sure that all the required terms are included.
2. **An internal subject classification.** This part of the preliminary work establishes how the field will be represented in the dictionary, i.e. what subcategories of the field will be covered.
3. **A terminological classification.** This is a systematic (not alphabetical!) listing of the LSP terms of the subject field, typically structured on the principle of meronymy. To allow for cross-cultural variation, a separate list should be made for each language. The purpose of this step is to make sure that all central terms from all the subfields are included.

For some lexicographers, this three-stage approach can appear too elaborate and time-consuming. However, some kind of delimitation of the subject field and its classification into subdivisions needs to be made. Otherwise, the dictionary will contain superfluous terms or, worse, terminological gaps.

2.3.6 Corpus building and lemma selection

The information to be provided by the LSP dictionary can be said to originate from three principal sources. The first is the lexicographer's **linguistic competence**, which needs to cover both general and specialized language, and, furthermore, both the source and the target language. In the real world, it is rather unlikely that a single lexicographer would be fully bilingual and, moreover, well-versed in the LSP of both fields (or all the subfields). Therefore, LSP dictionaries are typically made by teams of lexicographers, each having an expertise in a particular LSP subfield or language (native speakers of L2, for instance, can be used as informants).

The second component of the empirical basis of the dictionary is the **existing literature** written on the given LSP field so far. This literature includes dictionaries, handbooks, encyclopaedias as well as some scientific monographs and articles. Previously published dictionaries are always an invaluable source of information, and should be given due credit in the front matter of the newly-prepared dictionary.

However, relying on the "secondary literature" of the existing dictionaries would not be enough for a successful LSP lexicographic project. The central source of information for a specialized lexicographer should be a **LSP text corpus**. Such a corpus is a collection of written (rarely spoken) texts dealing with the subject field in question. The texts selected should address all the subfields covered by the dictionary. For a bilingual dictionary, two parallel corpora should be prepared, preferably containing similar text types. The required size of the corpus varies depending on the size of the planned dictionary and the number of subfields covered. [Bergenholtz and Tarp 1 1994, 95] give the number of 500,000 words for the coverage of the field of American gene technology. However, the final number is derived not only from the dictionary size, but also from the practical possibilities of the lexicographer.

Until recently, texts selected for corpora were predominantly printed; these were then scanned or, where the print quality was poor, typed manually into the computer. Nowadays, a wide range of electronic sources are available, ranging from Internet articles to a variety of CD-ROMs. The

texts collected must be carefully evaluated and their appropriateness regarding the coverage of the given LSP field considered⁶.

The work with the corpus collected involves two important steps, **scanning** and **data analysis** [Bowker 2003, 162]. During scanning, the lexicographer searches the corpus for potential terms. This is done either manually (especially in printed corpora) or by means of special computer tools such as automatic extraction tools, word frequency lists, concordances, etc. Having finished the scanning stage, the lexicographer needs to analyze the collected terms. He/she analyzes the contexts in which the terms occur to establish the characteristics of individual concepts. On the basis of these characteristics, corresponding terms from the parallel corpus will be selected as equivalents⁷. Besides the conceptual features, grammatical characteristics of the term are also noted, e.g. part of speech, gender, irregularities, prepositions, etc. Upon the completion of the analysis, individual dictionary entries are prepared.

For a specialized bilingual dictionary, finding the correct equivalents is of paramount importance. Naturally, establishing equivalence is easier in the culture-independent terminologies of technology and natural sciences, sometimes called “prescriptive” terminologies [Machová 1995, 144]. The terms contained in them are largely coined by field experts, and there is very little ambiguity or vagueness of meaning. However, a different situation arises in the culture-dependent (“pseudo-prescriptive”) terminologies, mostly of humanities, containing terms whose interpretation is based on some agreement within a certain culture or school of thought. The usage of culture-dependent terms can vary across countries or intellectual trends (consider, for instance, the term *lexicalization* in linguistics). Here, the lexicographer’s task is much more complex, and will necessitate the use of additional explanatory devices, such as labels or encyclopaedic information. In addition, co-operation with field experts is often necessary at the stage of allocating equivalents.

Finally, it is necessary to deal briefly with the scope of **lemma selection**. How large a section of the given LSP terminology should a lexicographer cover? There are basically two approaches, called by Nielsen **maximizing** and **minimizing lemma selection**. [Nielsen 1994, 127-129]. The maximizing lemma selection aims at including as many terms from the given LSP area as possible. The result of this approach is a **maximizing dictionary**, usually a bulky volume of several thousand lemmata. The minimizing lemma selection, on the other hand, is targeted at choosing central terms only, mostly for practical reasons. All potential lemmata found less important in terms of internal or terminological classification are disregarded, resulting in a **minimizing dictionary** of a reduced size. In reality, few dictionaries are purely maximizing or purely minimizing; the majority find themselves on a scale between the two extremes.

The process of corpus and lemma selection is a complex one, deserving a more thorough treatment than provided by this section. Additional information can be found in [Bergenholtz and Pedersen 1994]. The practical aspects of lemma selection will be discussed in 4.3.

2.3.7 Specialized dictionary components

Every bilingual LSP dictionary consists of a number of basic components. As these are very similar to components present in general bilingual dictionaries, only a brief overview of them will be provided. This overview is primarily based on [Landau 1989], [Hartmann and James 2001] and [Bergenholtz and Tarp 1 1994].

On the basis of the sources cited, a specialized dictionary can be shown to display the following structure:

1. **Front matter.** Comprises those preliminary sections of a dictionary which precede the word-list section.

- **Contents.** Tables of contents are important to draw the user’s attention to individual

⁶The practical aspects of corpus processing are discussed in [Sinclair 2003].

⁷[Machová 1995, 145] states that the native language equivalents are allocated on the basis of the authors’ LSP knowledge, without searching for the information in the corpus.

dictionary sections, such as bibliography, dictionary grammar, appendices, etc. They should be placed at the very beginning of a dictionary.

- **Preface.** A section in which the publishers and editors state their objectives and the intended functions of the dictionary.
 - **A list of abbreviations.** Contains the abbreviations of both LSP and linguistic terms.
 - **Bibliography.** This may also be placed after the word list in the back matter.
 - **Introduction.** A metalexigraphic section which describes the empirical basis of the project and explains how the dictionary was made.
 - **User's guide.** Provides help to the user by explaining how information is organized and how to find it.
 - **Encyclopedic section.** A speciality of LSP dictionaries, particularly important where the arrangement is exclusively alphabetical. It provides an introduction to the given LSP subject field, explaining its systematic arrangement and relations among subfields. Graphs and pictures can be used to illustrate the structure of the field.
 - **Dictionary grammar.** A useful section in a bilingual dictionary intended for translation and production, a dictionary grammar explains the basic categories, regularities and irregularities of the foreign language. It is a space-saving device, as it concentrates the information that would otherwise need to be provided in individual entries.
2. **Word list(s).** The actual list(s) of headwords equipped with equivalents - the most important dictionary component.
 3. **Middle matter.** The dictionary components that can be inserted into the word list, although not forming a part of it. These components include e.g. maps, diagrams, illustrations, lists of semantic fields, etc.
 4. **Back matter.** Dictionary components placed at the end of the dictionary after the word list.
 - **Index.** An alphabetical component found especially in systematically arranged dictionaries, guiding the user to the relevant lemma. Beside complementing systematic word lists, indices can also be used to provide access to front matter information, such as the dictionary grammar or encyclopaedic section.
 - **Appendix** A dictionary component providing supplementary information on the LSP field covered by the dictionary. The information provided in the appendix varies according to the dictionary subject matter; included can be, for instance, mathematical symbols, conversion tables, a periodical table, the Greek alphabet, examples of business letters, a bibliography, etc.
 - **Informative label.** A short description of the dictionary size and contents, usually placed on the back cover of the dictionary. It may also include information about the lexicographer's background. It has a commercial purpose, intending to capture the attention of potential buyers.

It is obvious that very few dictionaries include all the components stated. Especially dictionaries compiled by field experts only, without the advice or direct involvement of linguists, lack such useful parts as the introduction, dictionary grammar or a helpful and informative user's guide. On the other hand, given the individual circumstances of a lexicographic project, not all the components stated are always indispensable. The practical aspects of dictionary components with regard to Czech bilingual specialized dictionaries will be discussed in 4.3.

2.3.8 Specialized dictionary structures

As in the previous section, a specialized dictionary shares most of its structures with the general dictionary, the only difference being the increased prominence of some of the structures with respect to the LSP orientation of the dictionary. In all, we distinguish four main types of LSP dictionary structure⁸:

- macrostructure
- microstructure
- cross-reference structure
- access structure

To begin with, the term **macrostructure** refers to the arrangement of the lemmata in a dictionary. Two basic types are distinguished: the alphabetical and the systematic macrostructure. Choosing one or the other arrangement is one of the key choices a dictionary author has to make.

The **alphabetical macrostructure** is the most popular lemma arrangement, in LGP and LSP dictionaries alike. The reason is obvious – its user-friendliness. The desired information is found quickly, only one lookup is necessary. On the other hand, the alphabetical arrangement disrupts the systematic structure of the LSP field, so that terms are isolated, without any indication of their relations to other terms within the conceptual field.

The alphabetical arrangement is of two basic types (especially relevant for lemmatizing multi-word terms), called **letter-by-letter** and **word-by-word** macrostructure [Hartmann and James 2001, 5]. In the letter-by-letter structuring, words and phrases are listed in order of their letters, disregarding word boundaries. In contrast, the word-by-word arrangement does take word boundaries into consideration. Compare the following examples of a letter-by-letter arrangement:

parrot keeper chovatel papoušků
parrotlike podobný papouškovi, typický pro papouška
parrot owner majitel papouška

... with the same lemmata arranged in the word-by-word structure:

parrot keeper chovatel papoušků
parrot owner majitel papouška
parrotlike podobný papouškovi, typický pro papouška

It will be shown in 3.3.3 which ordering is given preference in Czech LSP dictionaries.

Apart from the straight alphabetical macrostructure, two other types of alphabetical or semi-alphabetical ordering are used to provide a better description of the semantic relations among terms. The first one, called **niching** [Hartmann and James 2001, 99], consists in the grouping of several related terms (*sublemmata*) within a single entry while adhering to the strictly alphabetical principle inside the niche lemma as well as in relation to the previous and following lemmata:

breed hnížit, množit se, odchovávat
breeding 1 chov, odchov, hníždění **2** chovný, hnízdí
breeding history historie chovu
breeding pair chovný pár
breeding season hnízdí období

⁸[Bergenholtz and Tarp 1 1994] also distinguish a “distribution structure”, which is the structure of the linguistic and encyclopaedic information distributed across the dictionary, and “frame structure”, i.e. the structure of the dictionary components (the division of the dictionary into the word list, the front matter, the middle matter and the back matter). However, only the macrostructure, microstructure, cross-reference structure and access structure are given coverage in the present thesis.

brood snůška

The second type, called **nesting**, represents a diversion from the strictly alphabetical ordering [Hartmann and James 2001, 99]. It consists in the clustering of related words and phrases within one entry (called a *nest*), while the alphabetical principle in relation to the preceding and following lemmata is broken. A larger number of terms can be thus grouped together than allowed by niching:

breed hnízdit, množit se, odchovávat
breeding 1 chov, odchov, hníždění 2 chovný, hnízdní
 breeding history historie chovu
 breeding pair chovný pár
 breeding season hnízdní období
 captive breeding odchov v zajetí
 colony breeding chov v kolonii
brood snůška

According to [Gouws 2003, 41], this type of arrangement, still preserving the alphabetical ordering within the nest, is called **first-level nesting**. However, there is also a more “radical” example of nesting, called **second-level nesting**, whereby the lemma column itself is not arranged strictly alphabetically. This tends to be applied in dictionaries where phrasal items are included among the sublemmata and morphosyntactic ordering principles are given preference to strictly alphabetical ones, as shown in 3.3.3.

Unlike the linguistically-oriented alphabetical arrangement, the **systematic macrostructure**, one in which the entries are arranged according to conceptual systems, represents a focus on the content of the LSP field. Therefore, it may appear ideal for the description of a terminology. After all, LSP experts claim that a true specialized reference work is organized along systematic, not alphabetical lines, or, at least, the systematic macrostructure is recommended. Terminologist Eugen Wüster, for instance, claims that in gathering data for the specialized dictionary (Fachwörterbuch), the systematic approach is the only possible one: “Bei der Sammlung der in ein Fachwörterbuch aufzunehmenden Wörter kann man eigentlich gar nicht anders vorgehen als systematisch” [Bergenholtz and Kaufmann 1997, 96].

The undoubtable advantage of the systematic arrangement is that it offers an overview of the subject area, with its hierarchies and internal relations; in fact, it acts as a sort of textbook for the user. As concept relations remain unbroken by the rules of the alphabet, a greater understanding of the subject field is achieved, especially in the taxonomically-arranged, culture-independent sciences. The strengths and weaknesses of this arrangement will further be discussed in 3.3.3.

The next important dictionary structure is the **microstructure**, i.e. the internal arrangement of the dictionary article. According to [Roberts 2001], the article can be divided into several distinct fields, each containing a specific type of information. Unlike general language dictionaries, LSP dictionaries traditionally display a simple microstructure, consisting mostly of headwords and their equivalents. However, the trend in today’s theory of specialized lexicography, undoubtedly influenced by pedagogical lexicography, is towards the inclusion of as much grammatical and encyclopaedic information as possible. Apart from the headword and the equivalent, the compulsory elements of the article, the microstructure can contain the following information:

- pronunciation
- morphological information (word class, gender, irregularities, etc.)
- syntactic information (valency, prepositions, collocations)
- information on synonymy

- linguistic labelling (labels indicating regional usage, field labels etc.)
- exemplification (usage examples)
- encyclopaedic information (encyclopaedic notes and labels)

The amount of information to be incorporated into the microstructure depends on the purpose of the dictionary and on the practical circumstances of the lexicographic project, i.e. the planned size of the dictionary, the limits set by the publisher, the linguistic expertise of the lexicographic team and other factors.

Another of the dictionary structures, the **cross-reference structure**, refers to a network of cross-references that enable the user to reach information contained in various parts of the dictionary. Two types of cross-references are distinguished: dictionary-internal, referring the user to information in a different part of the dictionary, and dictionary-external, referring to information outside the dictionary (e.g. ISO norms and other standards). Furthermore, Sandro Nielsen divides cross-references into **use related** and **function related** [Nielsen 1999, 94-96]. Use related cross-references point towards the information that facilitates the *use* of a dictionary (for example, referring to other sections of the user guide). Function-related cross-references, on the other hand, provide information related to the *function* of the dictionary. Thus, for instance, in a dictionary aimed at translation, a function related cross reference will guide the user to information intended to aid the translation process (e.g. referring to co-hyponyms of a given lemma).

Referring to other parts of the dictionary or information outside a dictionary is facilitated by indicators such as *see*, *see also*, *compare*, *cf.*, etc., or by lexicographic symbols such as \rightarrow , \diamond or $*$. Great care needs to be taken not to make cross-references **circular**, e.g. to refer from A to B and then from B back to A.

The last of the dictionary structures to be mentioned is the **access structure**. By this term lexicographers mean the structure of lexicographic indicating devices which guide the user to the information needed. Two basic types are distinguished – **outer access structure**, comprising indicators directing the user to the relevant article, and **inner access structure**, referring to indicators within the individual article⁹. The former includes such devices as running heads, thumb indices or the use of colour. The latter mostly makes use of a variety of typographical devices such as the bold print (to indicate the lemma or the equivalent), italics, brackets, vertical lines, semicolons, etc.

In conclusion, it can be said that a good dictionary is the result of the interplay of its individual structures, provided that they are carefully and expertly designed. While the microstructure contains the information sought, the other structures co-operate in guiding the user towards it at the lowest information cost possible, or give additional data that enhances the understanding of the entry consulted.

2.3.9 The use of computers in specialized lexicography

The production of dictionaries, formerly the preoccupation of linguists, is witnessing an increased involvement of information scientists and computer experts. This involvement greatly facilitates a number of dictionary preparation stages like corpus compilation, corpus tagging, lemmatization¹⁰, disambiguation, editing of dictionary articles, etc. At present, five principal types of computer software are used in dictionary preparation: software for typesetting, text editing (well-known from other disciplines besides lexicography), maintaining databases, textual analysis and grammatical analysis [Dodd 2003, 351].

Dictionary databases, in particular, represent a significant facilitation of the lemmatization process. Having replaced the traditional card files, they enable lexicographers to store information in chunks, called “records”. Each record is divided into several fields and subfields, which can be accessed in an easy manner by different routes. The advantage of a database is that the information can be quickly updated or deleted, which was not possible in card files.

⁹For a more detailed discussion of access structure see 4.8.1.

¹⁰the reduction of the variant word forms to the canonical (uninflected) form

Text analysis software has first been used in literary studies, but its usefulness was soon recognized by dictionary compilers. By means of the software, the lexicographer is able to obtain a list of all the words used in the given text, both in the alphabetical and frequency order. Furthermore, the list can be expanded into an index which shows the position of each word in the text if necessary. Another important feature of this software is its capability to provide concordances, enabling the lexicographer to examine the syntactical and pragmatic aspects of the term in question.

Finally, **software for grammatical analysis**, originally used in connection with computational linguistics and artificial intelligence, classifies words into grammatical categories and subcategories, providing an extremely helpful tool in lemmatization. Morphological categories of corpus units are established by means of multiple passes through a text combined with morphological recognition, consulting lists of exceptions and syntactic templating [Dodd 2003, 353]. Although this software is of major use to general lexicographers, even LSP lexicography can utilize its potential to enrich the LSP dictionary article with grammatical information.

In addition to aiding the production of printed dictionaries, computer work is finding an increased application in the preparation of the ever more popular electronic dictionaries, published on CD ROMs or the Internet (“online lexicons”). These dictionaries are either exclusively designed as electronic reference works or are published as mere electronic versions of printed dictionaries. In both cases, the electronic format offers a number of significant advantages, such as:

- almost unlimited space enabling richer entries
- low information cost (easy access to desired information) owing to hypertext
- the possibility of separate searches of individual types of information due to parsing¹¹
- the possibility of involving sound (pronunciation)
- the possibility to include encyclopaedic information and illustrations
- practical size (a CD as opposed to a bulky book)

Despite the benefits stated, it is unlikely that electronic dictionaries will totally replace printed ones in the future, partly because the number of conservative dictionary users is still very high. Moreover, linguistic expertise can never be entirely removed from dictionary work. It can be assumed that in the years to come, electronic and printed dictionaries will continue to coexist, just as information scientists and linguists will continue to co-operate to further enhance the quality of dictionaries, regardless of their format.

¹¹see [Bergenholtz and Tarp 1 1994, 37–47]

Chapter 3

Analysis of Czech-English and English-Czech specialized dictionaries

Dictionaries are complex units made up of a number of independent components which together constitute a whole, the dictionary. In this respect, a dictionary may be compared to a novel.

– Henning Bergeholtz

The present section deals with the process and the results of a detailed analysis of Czech-English and English-Czech dictionaries carried out to obtain an overview of the state-of-the-art Czech bilingual specialized lexicography – its strengths, weaknesses and characteristic features. The guidelines to be produced in the following section would not be thinkable without a sum of information gathered from authentic dictionaries of Czech origin, testifying to lexicographic excellence as well as shortcomings, both useful in their potential to serve as valuable learning material.

3.1 Background to the analysis

In order to obtain a sufficient wealth of information on different aspects of Czech bilingual specialized dictionaries, yet avoid becoming overwhelmed with lexicographic data, twenty-five dictionaries were selected for analysis. This number was found satisfactory for gaining a representative sample of bilingual dictionary material. Some of the dictionaries analyzed are bidirectional; these are regarded as a single dictionary. On the other hand, three lexicographic projects in the sample consist of two separate volumes. Unlike the single-volume projects, they are considered as two separate dictionaries, as there can be some significant differences between the individual directions.

The selection of these dictionaries was not random; several main purposes were observed:

- To make sure that both the English-Czech and Czech-English directions are represented in proportion, allowing for some predominance of English-Czech dictionaries, as they are more frequent.
- To obtain a well-balanced sample of LSP dictionaries by including dictionaries of both humanities and sciences to a comparable degree. In addition, to select as wide a variety of

fields as possible, ranging from such highly specialized areas as cartography or hydro-biology to more mainstream fields such as law, education or business.¹

- To make sure that both single- and multi-field dictionaries are represented. Similarly, to include both maximizing and minimizing dictionaries.

Despite the fact that it might be interesting to provide a diachronic evaluation of Czech bilingual specialized dictionaries, comparing the quality and informativeness of older projects to some of the recent ones, the idea was eventually rejected. As synchronic analysis itself offers a wealth of relevant material, the choice of dictionaries was limited to those published after 1989.

For completeness of information, the authors and names of the dictionaries analyzed, together with their basic classification, are listed below (for their full bibliographical details see *Bibliography*). In the analysis, each dictionary will be referred to by the name of the author/authors in capital letters. Some lexicographers, such as Sandro Nielsen, use special abbreviations for individual dictionaries. As we assume that shortened names such as ALD, LNUD, AND, FEO [Nielsen 1994] do not reveal much, especially since the number of dictionaries to be abbreviated is twenty-five, we use authors' names instead. One advantage of this is that among people from various LSP fields, the corresponding dictionaries indeed tend to be referred to using the names of the authors. If the dictionary has several authors, only the name of the first one is used for convenience' sake.

1. Jan BALEKA: *Anglicko-český slovník výtvarného umění (English-Czech Dictionary of Art Terms)* – single field, minimizing
2. Zdeněk BAŽANT: *Anglicko-český technický slovník (English-Czech Dictionary of Technology)* – multi-field, minimizing
3. Zdeněk BAŽANT: *Česko-anglický technický slovník (Czech-English Dictionary of Technology)* – multi-field, minimizing
4. Marta CHROMÁ: *Anglicko-český právní slovník. (English-Czech Law Dictionary)* – single field, minimizing
5. P.H. COLLIN: *Anglicko-český obchodní slovník (English-Czech Business Dictionary)* – single-field, minimizing
6. Jarmila HÁJKOVÁ et. al: *Anglicko-český a česko-anglický slovník ekologie a životního prostředí (Czech-English and English-Czech Environmental Dictionary)* – single-field, maximizing
7. Milan HANÁK et al.: *Anglicko-český architektonický a stavební slovník (English-Czech Dictionary of Architecture and Civil Engineering)* – single field, maximizing
8. Milan HANÁK: *Česko-anglický architektonický a stavební slovník (Czech-English Dictionary of Architecture and Civil Engineering)* – single-field, maximizing
9. Jaroslav HEŘMANSKÝ: *Moderní anglicko-český slovník sportovních výrazů (Modern English-Czech Dictionary of Sports Terminology)* – single-field, minimizing
10. Bohuslav HORÁK: *Anglicko-český a česko-anglický lesnický a dřevařský slovník (Czech-English and English-Czech Dictionary of Forestry and Wood Products)* – single-field, maximizing
11. Miroslav KALINA et. al: *Odborné slovník anglicko-český z oblasti ekonomické, obchodní a právní (English-Czech Dictionary of Economics, Business and Law)* – multi-field, minimizing

¹In a number of instances, several dictionaries dealing with the same or similar field were selected to enable comparison.

12. Ivo MACHAČKA: *Česko-anglický a anglicko-český slovník na cesty a dopravní rádce pro řidiče a motoristy (Czech English and English-Czech Dictionary of Motoring and a Driver's Guide)* – single-field, minimizing
13. Libuše MALINOVÁ et al.: *Anglicko-český a česko-anglický elektrotechnický a elektronický slovník (English-Czech and Czech-English Dictionary of Electrical Engineering and Electronics)* – single-field, maximizing
14. Augustin MERTA and Dagmar MERTOVIČOVÁ: *Anglicko-český slovník knihovnictví a informatiky (English-Czech Dictionary of Library and Information Science and Practice)* – single-field, maximizing
15. Oldřich MINIHOFFER, Miroslav HAVLÍČEK, Jaroslav STARÝ: *Anglicko-český a česko-anglický slovník. Zpracování dan. Telekomunikace. Kancelářské systémy (English-Czech Dictionary. Data Processing. Telecommunications. Office Systems)* – multi-field, minimizing
16. Jonathan P. MURRAY: *Anglicko-český lékařský slovník (English-Czech terminological Dictionary of Medicine)* – single-field, minimizing
17. Jan PRŮCHA: *Česko-anglický pedagogický slovník (Czech-English Dictionary of Education)* – single-field, minimizing
18. Martin RULÍK, Štěpán HUSÁK, Jan KVĚT et al.: *Anglicko-český a česko-anglický slovník pojmů používaných v hydrobiologii a ekologii mokřadů (English-Czech and Czech-English Dictionary of Terms used in Hydrobiology and Ecology of Wetlands)* – single-field, minimizing
19. Ivan ŘÁDA: *Anglicko-český letecký slovník (English-Czech Aviation Dictionary)* – single field, maximizing
20. Marcela STRAKOVÁ, Josef BÜRGER, Milan HRDÝ: *Anglicko-český hospodářský slovník (English-Czech Dictionary of Business)* – single field, maximizing
21. Marcela STRAKOVÁ, Josef BÜRGER, Milan HRDÝ: *Česko-anglický hospodářský slovník (Czech-English Dictionary of Business)* – single field, maximizing
22. Jiří ŠÍMA: *Česko-anglický slovník pro geodety a kartografy (Czech-English Dictionary for Geodesists and Cartographers)* – single field, minimizing
23. Věra TOPILOVÁ: *Česko-anglický slovník právních a obchodních termínů (Czech-English Dictionary of Legal and Business Terms)* – multi-field, minimizing
24. Jaroslav VEDRAL: *Anglicko-český slovník biotechnologie (English-Czech Dictionary of Biotechnology)* – single field, minimizing
25. František VLK: *Anglicko-český odborný slovník motorových vozidel (English-Czech Terminological Dictionary of Motor Vehicles)* – single field, maximizing

As can be seen from the wide range of LSP fields covered, the data sampled from these dictionaries can be regarded as representative of the overall situation in Czech bilingual specialized lexicography.

Having introduced the material to be analyzed, several comments need to be made about the structure of the analysis. In its first part, some basic facts on the twenty-five dictionaries will be given, mostly relating to their size and character, and some generalizations will be made in relation to the Czech lexicographic environment and its specific features. Next, a detailed analysis of the selected dictionaries will be presented. Although there are several ways in which this can be implemented, a decision was made to analyze the dictionaries according to their components and structures. Consequently, the analysis is carried out according to the following framework:

1. Outside matter: Front matter

- contents
- preface and introduction
- user's guide
- dictionary grammar
- encyclopaedic section
- other front matter components

2. Outside matter: Back matter

- index
- appendix
- bibliography
- informative label

3. Word list

- macrostructure
- microstructure
- cross-reference structure

The main dictionary components and structures having been analyzed, some additional aspects of the dictionaries in question will be dealt with (e.g. equivalence, general and specialized language, etc.) Next, a brief section will summarize the results of the analysis in a new typology of shortcomings found in Czech-English and English-Czech dictionaries. Finally, the increasingly fashionable method of user research will be covered in the concluding section, discussing the basic principles as well as the results of a user survey carried out especially for the purposes of the thesis.

Although the present chapter is overwhelmingly based on the authentic data researched, some theoretical comments and explanations will be made to enable better understanding of the material presented.

3.2 General character of the dictionaries analyzed

Lexicography is a field of human activity in which the desirable is in constant clash with the practicable. One of the key factors influencing the character of Czech-English and English-Czech dictionaries is the fact that Czech is a small language. "Small" here does not mean poor in vocabulary; language size can rather be understood as "the diffusion and range of application of a given language" [Bergenholtz and Tarp 1994, 57]. As Czech is a language with a small spread, it logically means that the market for specialized dictionaries is limited, even more so than in the case of general dictionaries. The limited user potential can have some negative effects on the quality of the dictionaries produced, for instance the reduction of terms lemmatized, the problem with combining dictionary functions, the reduction of linguistic and encyclopaedic information to save space, etc. Let us now examine how the small size of the Czech language is reflected in the character of the twenty-five dictionaries analyzed.

The first area in which language size plays a role is the category of maximizing/minimizing dictionaries. Large languages such as English, French or Spanish can afford to produce maximizing dictionaries of tens of thousands of lemmata providing an exhaustive coverage of the field in question. In the Czech environment, however, these dictionaries would hardly be marketable – although there is a need for them in certain circles, there are not enough buyers to make the project profitable. In consequence, minimizing dictionaries prevail over maximizing ones. In our

sample, 15 out of the 25 dictionaries are minimizing². Although this majority of minimizing dictionaries does not appear considerable, it needs to be remembered that two of the maximizing dictionaries on our list are part of a single lexicographic project (they are the opposite direction of the same dictionary, only published in a separate volume), so the actual ratio is 15: 8 in favour of minimizing dictionaries.

However, even the dictionaries classed as “maximizing” cannot compare in size to those produced for speakers of large languages, where the number of 120,000 lemmata is not an exception – such is the size, for instance, of the *Routledge Spanish Technical Dictionary/Diccionario Técnico Inglés* [Boud: 1997]. For illustration, here are the lemma counts for the single directions of the maximizing dictionaries analyzed:

STRAKOVÁ:	45,000 (each volume)
HANÁK I (E-Cz):	40,000
HANÁK II (Cz-E)	30,000
MALINOVÁ:	35,000
VLK:	37,000
ŘÁDA:	28,000
HÁJKOVÁ:	20,000
MERTA:	14,000
HORÁK:	11,000

From this data it follows that an average Czech maximizing dictionary contains between 20,000-30,000 lemmata. By and large, this is comparable to the situation in other small languages – for Danish, for instance, the average lemma count in LSP dictionaries is 20,000 [Nielsen 1994, 128].

Another aspect in which the small size of the Czech language plays a role is the occurrence of multi-field dictionaries. Apart from producing an exhaustive maximizing dictionary, publishing a single-field or even sub-field dictionary can represent another practical problem. There are a large number of users who need second-language information running across several fields (managers, technicians, communication experts) and apart from the convenience of having all the information in a single volume, users' reluctance to buy several separate dictionaries (for financial reasons or otherwise) can also play a part in the choice of a multi-field project. Its chance to sell well is simply higher than that of the single-field or even sub-field reference work.

The advantage of multi-field dictionaries is obvious – easy access to information covering several LSP fields. On the other hand, they often only provide superficial treatment of lemmata. In addition, they are poor in linguistic and encyclopaedic data to save space for the miscellany of terms. Finally, they have the undesirable tendency to cover some areas well, while culpably neglecting others. Fortunately, multi-field dictionaries are in the minority among those analyzed, the ratio being 20: 5.³ Single-field dictionaries prevail, which is in accordance with the current urging of Western LSP metalexigraphers to abandon multi-field dictionaries and focus on single-field or sub-field projects [Bergenholtz and Tarp 1 1994, 59]. On the other hand, it would be unrealistic to expect multi-field dictionaries to disappear from our lexicographic scene for good – they have a convenience-related function to fulfill. It is only important for the authors to make use of the front matter or informative label to explain the purpose as well as the limitations of the dictionary project to the potential buyers, thus preventing future disappointment.

Apart from the already-mentioned classification of LSP dictionaries into minimizing and maximizing or single-field, multi-field and sub-field, there is one more way of dividing them, i.e. into

²To provide an unanimous division of dictionaries into maximizing and minimizing is difficult, as this category moves on a scale. The division proposed in the thesis, made on the basis of the number of lemmata as well as information contained in individual dictionary introductions, can only be regarded as approximate. If only the front matter of the individual dictionaries provided more specific information on the dictionary project in question, the division could be more precise.

³However, even such a seemingly clear-cut category as the number of fields covered can be viewed from different angles. This thesis adopts rather a broad approach to what constitutes a field, treating the areas of business, sports or art as a single field. Nevertheless, some lexicographers would regard these as multiple fields, which would make our ratio very different.

bilingual and multilingual ones. It is another of the strengths of Czech lexicographic practice not to have produced a large number of multi-language reference works (those existing mostly refer to the subjects of medicine or biology), as they can offer little more than lists of bare terms in several languages. Due to their severely limited usefulness, these dictionaries are totally excluded from the sample list and from the thesis altogether. Indeed, the recent developments in dictionary publishing indicate that the practice of the multi-lingual LSP lexicography is being abandoned altogether in favour of more specialized and in-depth projects.

Finally, a brief mention must be made of the authorship of the LSP dictionaries analyzed. The way a dictionary looks as a final product is to a great extent determined by who participates in the lexicographic project. The handbook *A Practical Guide to Lexicography* claims that specialized dictionaries are predominantly made by trained linguists: "Although some specialized lexicographers may have undergone formal training in the subject field in question, many are actually language specialists (e.g. with training in lexicography, linguistics, or translation) and have not received formal training in the subject field" [Bowker 2003, 161].

Having a trained linguist as an author, or at least a member, of the lexicographic project should be a guarantee of the dictionary's quality in presenting linguistic data. Do the sample dictionaries comply with the situation outlined above? The answer is not easy to find, as the majority of them lack sufficiently detailed introductions in which the authorship would be clearly stated. This is an unfortunate state of things, as information on the background of the author/authors should be provided by every dictionary, as is the exceptional instance of HORÁK: "The present English-Czech and Czech-English dictionary was compiled at the Scientific Information Department of the Faculty of Forestry, MZU Brno. It originated on the basis of long-term information, translation, terminological and lexicographic activity of the author" [Horák 1999, 5].

However, the overwhelming majority of the other dictionaries fail to inform who their authors are. Only an approximate idea can be gained, based on the outside matter information of the selected dictionaries, on the quality of the dictionary entries and on a modest poll carried out among several Czech publishing houses involved in producing specialized dictionaries. Nine Czech publishing houses were addressed with the question whether linguists co-operate in the production of their dictionaries. Six of them (LEDA, Linde, Professional Publishing, Fraus, Scriptorium and Montanex sent back their replies, four of them stating that they did indeed have linguists as part of the lexicographic teams. One publishing house answered that the authors of one dictionary were all members of the English Department at the College of Economics, that is linguists with training in business studies. Although this finding appears encouraging, it has to be pointed out that the "inclusion of a linguist" – as has been admitted by the publishing houses themselves – mostly consists in proofreading the manuscript, correcting mistakes or making some additional suggestions. For a dictionary to be a multi-purpose, user-friendly reference work, more active involvement is needed.

After considering all the information available, we can come to the tentative conclusion that Czech bilingual specialized dictionaries are rarely written by linguists. This is most true of technical dictionaries, whose authors are invariably experts in technology. These "lexicographers" tend to be conservative in their approach to dictionary design and rather reluctant to take a linguist on board. A more promising situation can be found in dictionaries of social sciences, where linguists are often present as advisers. Sometimes the author is an applied linguist with an extensive knowledge of the subject area in question (especially common in dictionaries of business or law). Let us now examine how two different dictionaries (one technical, the other commerce- and law-related) treat the same entry. The first dictionary was compiled without the aid of linguists, the other by people trained in linguistics. An entry relevant to both subjects has been purposefully chosen.

operate obsluhovati, řídit, ovládati (stroj), uváděti v činnost, spouštěti; poháněti, udržovati v činnosti
~ **and release lag** doba přitahu a odpadu (relé) [Bažant et al. 1 1992, 612]

operate provozovat, řídit, obsluhovat, fungovat, vypravit, skupiny, organizovat zájezdy
o. a *computer* pracovat s počítačem
o. a *factory* řídit továrnu
o. a *machine* obsluhovat stroj
o. *in the red* mít deficit, ztrátový provoz
o. *on a non-profit making basis* působit na neziskové bázi
...
o. *on two shifts* pracovat na dvě směny
o. *transport services* provozovat dopravu [Kalina et al. 2001, 610]

Comparing the two entries, we can see that in the dictionary compiled by a linguist, the user needs are carefully considered and collocations included, containing also some implicit syntactic information. Such an entry will enable the user not only receive, but also produce text in the target language. The first entry, on the other hand, can only aid the passive user, failing to provide relevant information for active use.

The ideal situation regarding the authorship of specialized dictionaries has been described by Danish lexicographer Henning Bergenholtz, who claims that “No part of a specialized dictionary should be written only by a layman nor only by an expert in the given field” [Schaeder and Bergenholtz 1994, 156]. Although the situation in Czech specialized lexicography is still far from this proclaimed ideal, there is evidence of growing co-operation between field experts and linguists. The authorship of linguists may still remain an exception rather than a rule, but their involvement on dictionary teams is gradually becoming reality.

To conclude, the bilingual specialized dictionaries analyzed are more often minimizing than maximizing in their lemma selection, predominantly – but not exclusively – single-field in their LSP coverage and most frequently written by field experts who may consult with linguists, usually regarding the correctness and presentation of equivalents as well as of grammar information. Dictionaries of humanities display more active involvement of linguists than technical dictionaries.

3.3 Analysis of dictionary components and structures

The present section deals with a detailed analysis of the individual structures and components of the twenty-five selected dictionaries. Its aim is to elicit the information on the methods and preferences of Czech specialized lexicographers and thus to obtain source material necessary for the subsequent outline of the methodology of Czech bilingual dictionaries.

3.3.1 Analysis of the front matter

Situated before the word list, the front matter is a dictionary section informing users on the purpose, character as well as contents of the dictionary and explaining how to utilize the dictionary to its full potential. Generally, this section tends to be neglected by users, who often consult the word list straight away. Despite that, metalexigraphers stress the importance of the front matter, insisting that dictionary authors should not feel deterred by the lack of users' interest, as a good dictionary is unthinkable without a good front matter.

According to *Manual of Specialized Lexicography*, the standard front matter components include [Bergenholtz and Tarp 1 1994, 167-178]:

- a table of contents
- a preface
- an introduction

- a user's guide
- a dictionary grammar
- an encyclopaedic section

The present subsection will show how many of these components are found in the sample dictionaries and how much space and detail they are given.

Table of Contents

Having a table of contents in a dictionary, where it is the macrostructure that serves as the chief instrument of data access, may seem superfluous. However, in a high-quality dictionary comprising a rich variety of components besides the word list, a table of contents is a useful aid for referring the user to these components. It can be placed either in the front matter as the very first component of the dictionary, or, more rarely, in the back matter.

Out of the twenty-five dictionaries selected, only ten include a table of contents. In nine dictionaries it is placed in the front matter as the first dictionary component. On the other hand, HEŘMANSKÝ and MURRAY place the table of contents at the very end of their dictionaries. This is interesting as they are both arranged systematically (MACHAČKA, the third systematic dictionary in our selection, includes the table of contents in the front matter). Three relevant conclusions can be drawn from the survey of our sample as far as the table of contents is concerned:

1. The table of contents tends to be included in dictionaries rich in other components besides the word list (user's guides, appendices, bibliographies, lists of abbreviations, etc.). It appears with equal frequency in dictionaries of humanities and in technical dictionaries.
2. The table of contents is invariably present in dictionaries arranged systematically. Here, it can be regarded as a compulsory component without which the orientation in the dictionary would be extremely difficult. In alphabetical dictionaries, it remains an optional, though very helpful, component.
3. Some publishing houses (in our sample, Nakladatelství Fraus) seem to incorporate the table of contents into their house guidelines. In all dictionaries produced by such a publishing house, the table of contents is present. This suggests a unified dictionary-making policy.

Preface/Introduction

There is unanimous consensus among lexicographers that a good dictionary should contain an introductory part in which the background, the intended function as well as the contents of the dictionary would be briefly characterized. However, there appears to be a difference of opinion as to how many components this introductory part should comprise. According to the *Dictionary of Lexicography*, the introductory information should be subsumed under one section called a **preface**, which can be defined as "The place in the front matter of a reference work where publishers and/or editors state their aims and the intended functions of the work" [Hartmann and James 2001, 111]. On the other hand, the strictly methodical *Manual of Specialized Lexicography* holds that there should in fact be two introductory components – a preface and an **introduction**. In the preface, the author informs on the background to the dictionary, including the dictionary function, purpose, scope and application. The introduction, in turn, aims at describing the empirical basis of the lexicographic project, providing information on the corpus and the decisions made during the compilation of the dictionary [Bergenholtz and Tarp 1 1994, 169].

While the information considered by the *Manual* as part of the introduction is essential and should be covered by every good dictionary, it remains to be seen from the analysis of the sample dictionaries whether the strict division of the introductory part is adhered to by our dictionaries, and, consequently, whether the *Manual's* demand for two separate components is a logical solution or an unnecessary luxury.

The twenty-five sample dictionaries demonstrate that the preface/introduction is a firmly established part of a Czech bilingual specialized dictionary. Twenty-two of them contain this front-matter component; only three lack it altogether. However, the first striking observation to be made is that with a single exception⁴, the dictionaries do not contain a preface and an introduction as two separate components; they all include a single component, usually called a “preface”, an “introduction” or simply possessing no heading at all, which subsumes the information on both the function and purpose of the dictionary and on the corpus and lemma selection. To respect the established practice of Czech dictionary compilers and to avoid imposing artificial and perhaps unnecessary demands on them, let us accept that the inclusion of a single introductory component is the norm in Czech specialized lexicography. Based on a majority of instances, let us call this component a “preface”.

Although the high occurrence of prefaces in the sample dictionaries appears encouraging, the quality of individual prefaces varies greatly – from a few sentences briefly mentioning the intended users and the number of lemmata, as in *KALINA*, to detailed statements of the dictionary purpose, function, lemma selection and LSP treatment, for instance in *HORÁK*.

Upon close examination of the individual dictionary prefaces, several distinct categories of information can be identified. They are listed here in order of the frequency of occurrence in our sample:

Dictionary size. The number of terms treated is stated by an overwhelming majority of the sample dictionaries containing a preface. The authors either only give the number of the dictionary entries or add the total number of lexical units included in the dictionary (this tends to be done in dictionaries containing sublemmata and collocations, e.g. *CHROMÁ*). Some dictionaries, for instance *ŘÁDA*, also mention the count of the equivalents besides that of the lemmata, as the numbers can differ (28, 000 lemmata to 45,000 equivalents in his case). The dictionary size is always expressed by well-rounded numbers, which, however, must only be regarded as approximate.

LSP fields covered. With the exception of a single dictionary (*MURRAY*), all the dictionaries containing a preface provide some listing of the fields and subfields treated⁵. In single-field dictionaries, the listing usually involves the individual sub-fields of the LSP field (e.g. the field of aviation treated by *ŘÁDA* subsumes civil aviation, military aviation, air traffic control, airport terminology, etc.). In multi-field dictionaries, a list is provided of the individual fields described. Frequently, the authors report to have included some terminology from adjacent fields as well, provided that it frequently occurs in the texts of the LSP field treated. Thus, for instance, *STRAKA*, dealing primarily with business, also covers to some extent such related fields as ecology, transportation, the system of customs and excise and information technologies. This decision saves users from having to consult several LSP dictionaries at the same time.

Background to the lexicographic project. More than a half of the prefaces provide information on the background to the dictionary – the sources of lemmata, the methods of their selection and the dictionary’s authorship. Generally, the comments on where the LSP terms were excerpted from tend to be vague, often only speaking of “long-term excerption” from “a variety of sources”, such as in *MALINOVÁ*: “The dictionary, compiled on the basis of excerption from modern specialized books and magazines, covers the current state of English and Czech terminology of electrical engineering and electronics” [Malinová et al. 1993, 3]. Only a few of the dictionaries informing on their own empirical basis are more concrete. One such notable exception is *HORÁK*, stating the following: “The dictionary was compiled using the database of forestry and wood production *TREECD* on CD-ROM, and the publi-

⁴The exception mentioned is *BAŽANT 1*, the Czech-English volume of the technical dictionary. Besides a preface, it also contains a very brief introduction including a note on lemma selection and intended users.

⁵*HEŘMANSKÝ*, which does not include a preface, provides the listing of LSP fields within the informative label in the back matter.

cations Terminology of Forest Science, Technology, Practice and Products (Ford Robertson, 1971) and Forestry and Forest Products Vocabulary (Ruokonen, 1985)” [Horák 1999, 5].

Most of the other dictionaries are not as explicit as HORÁK about the sources of the terms they lemmatize. The data given is usually more general, for instance:

- existing specialized dictionaries, mostly English in origin (CHROMÁ)
- ISO norms (VLK)
- authentic documentation related to the LSP field, e.g. legal contracts, business letters, etc. (CHROMÁ)
- Internet information (VLK)
- fiction (Ř)
- own experience (VLK)
- information obtained by consulting experts (HÁJKOVÁ)
- newspaper and magazine reviews (BALEKA)

The statement of the sources of lemmata is connected with another (often equally neglected) outside matter component, the bibliography (see below).

Besides the sources of terms, the note on the dictionary’s background can also comment on the criteria of lemma selection. This is the case, among others, of a comment by RULÍK: “The selection of lemmata for the dictionary was done in such a way as to include as many fields⁶ as possible [...] Although an attempt was made at providing a balanced representation of the individual fields, some terminologies prevail (e.g. fishing).” [Rulík, Husák, Květ 1996, 5]. In addition, minimizing dictionaries (e.g. ŠÍMA) usually report that lemma selection has only been limited to high-frequency terms and that the dictionary by no means aspires to be a complete terminology.

An interesting point concerning the selection of terms is found in PRŮCHA. Here, the lexicographer has adopted a user-oriented approach to deciding which terms will be covered, rather than a purely frequency-driven one: “The dictionary contains more than 6000 specialized terms. The terms represent **what Czech users need to express** (sic!) for their communicative purposes. Therefore, the lemma selection is focused on simple and multi-word terms which are anchored in the educational institutions of the Czech Republic. Naturally, a certain part of the terminology is international, i.e. not limited to specifically Czech reality” [Průcha 2005, 6]. The fact that the author adopted this user-oriented approach, making sure that the terminological idiosyncracies of the Czech educational system will not be avoided, speaks of a high degree of lexicographic expertise.

Another information item occasionally found in the background part of the preface is the statement of the dictionary’s authorship. The note on authorship is usually not very concrete (possibly for modesty reasons), plainly stating that the dictionary was compiled by a group of field experts (HANÁK), that it originated at a particular institution (e.g. the Faculty of Forestry and Wood Production in Brno, as seen in HORÁK) or that the manuscript was read and corrected by a language expert (BAŽANT). Due to the lack of preface information it is difficult to make any generalizations about the authorship of our LSP dictionaries, as discussed in 3.2.

Intended users Seventeen out of the twenty-five prefaces make a clear statement about what sort of users the dictionary is intended for. Given that we are dealing with LSP dictionaries, it is no surprise that all the seventeen dictionaries state that they are intended for field experts. In addition, nevertheless, other user groups are also mentioned. Very frequently, experts in neighbouring fields are stated to fall within the user group. Thus, for instance, PRŮCHA states that his dictionary of pedagogy is designed not only for teachers, academic workers and

⁶In actual fact, these are rather subfields.

students, but also managers of educational institutions, experts in psychology, sociology, etc. Another user group mentioned (nine instances) involves translators and interpreters working with given LSP texts. These fall within the group of semi-experts, together with students of LSP subjects and experts in neighbouring fields. Finally, in a minority of dictionaries (five instances), the user scope is also extended to include non-experts. These lay users are usually referred to as “the general interested public” (CHROMÁ) or “hobbyists” (ŘÁDA). It is obvious, however, that even such laypeople are expected to have some knowledge, however basic, of the LSP field in question.

Dictionary function. This aspect, although regarded as absolutely crucial by the Aarhus lexicographers, tends to be neglected in the prefaces of the selected dictionaries. The authors do not seem to be giving much thought to whether the dictionary is going to be used for the purposes of language reception, production or translation, or all of these. The inclusion of translators and interpreters among the proclaimed users implies that translation is going to be one of the functions, but nothing is explicitly said about it. This can be simply due to the fact that Czech is too small a language to produce dictionaries serving individual functions; the reference works published simply appear to have a “universal” function.

It is beyond doubt that mentioning the intended language functions in the preface would be a proof of the author’s familiarity with the latest results of the research into LSP lexicography. However, the current situation seems to suggest that the considerations of language production, reception and translation still fail to play an important role in the methodical planning of the dictionaries (this is, for example, illustrated by the indication of gender in Czech nouns in dictionaries obviously intended for Czech users, showing a degree of ignorance of the dictionary’s real function).

However vague most of the selected dictionaries are regarding their function, there are some notable exceptions. One of them is represented by BALEKA, a rather small, minimizing English-Czech dictionary of art containing little more than bare terms and their equivalents. To any critic who could view the poor microstructure negatively, the author answers in the preface, stating clearly the dictionary’s function: “The dictionary is intended for passive language use, therefore it does not even indicate pronunciation. The entry structure is intentionally simple, [...] enabling fast and easy lookup of the English art term and its Czech equivalent. Thus, this structure aims at obtaining unambiguous information, which is sufficient for passive reading and text understanding” [Baleka 2003, 5]. This honest statement demonstrates that simple microstructure, often criticized by linguists as the mark of a “bad” dictionary, does not always have to be a shortcoming, provided its purpose is clearly explained by the dictionary preface.

Comment on the need for the dictionary Twelve prefaces from our sample contain a note explaining why the present dictionary is needed and on what grounds it has been compiled. The purpose is obvious – to convince potential users of the merit of the dictionary and, where there is competition, to state its unique qualities. These are some of the needs stated:

- The dictionary covers a terminology that has not yet been treated by any dictionary (HORÁK, ŘÁDA, VLK, HÁJKOVÁ).
- Previous dictionaries of the given LSP field exist, but they are out-of-date and incomplete (ŠÍMA).
- The dictionary offers some novelty (e.g. being compiled on the basis of a continuously updated term bank) in contrast to the existing ones (MINIHOFER).
- The dictionary seeks to contribute to the unification of an insufficiently standardized terminology (HÁJKOVÁ).
- The dictionary meets the needs of a new social, political or economic situation, e.g. European integration or the increasingly globalized world market (COLLIN).

Nielsen [1994: 90] regards the comment on the need of the dictionary as optional rather than necessary, but adds that it can have some relevance when it comes to lay users of the dictionary. We can also add that on the ever-increasing dictionary market (provided that dictionary prefaces are read), it can have a certain marketing role, explaining to potential buyers why this dictionary may prove indispensable to them.

Acknowledgements. Although they can also be included as a separate dictionary component (such as in HÁJKOVÁ), the authors' acknowledgements are often placed at the end of the dictionary preface. Where not only names but also institutions are stated, we can gain information on the wider background of the lexicographic project.

To conclude, the prefaces examined show some common characteristics in the information provided (especially as regards dictionary size, LSP fields covered and intended users). On the other hand, some important information items (above all dictionary function) are frequently omitted. The occurrence of the individual preface parts can be summarized in Table 3.1.

Preface part	No. of occurrences	Percentage
dictionary size	20	80%
LSP fields covered	20	80%
background to the dictionary	15	60%
intended users	14	56%
dictionary function (stated or implied)	13	52%
comment on the need for the dictionary	12	48%
acknowledgements	7	28%
Total of dictionaries	25	100%

Table 3.1: The occurrence of individual preface parts in the sample dictionaries, in numbers and percentages.

User's guide

Besides a preface explaining the background and purpose of the lexicographic project, a dictionary should also contain a user's guide in its front matter, where the user is instructed how to work with the dictionary to obtain the information needed and how to utilize the dictionary to its full potential. The purpose of the user's guide has been pertinently expressed by leading lexicographer Sidney I. Landau: "The purpose of the guide is to describe as clearly as possible all the kinds of information included in the dictionary [...] To put the matter simply, the guide answers the questions, What's in it? What does it mean?, and How do I find it?" [Landau 1989, 116].

Unlike the preface, usually made up of continuous text, the user's guide consists of a series of guidelines equipped with dictionary entry examples, resembling a manual. Where the dictionary has a very simple macro-and microstructure (e.g. BALEKA or RULÍK), the user's guide will be rather short. However, in dictionaries employing more complex structuring (sublemmata, niching, nesting, definitions, collocations, etc.), very precise instructions must be given to the user, covering a whole range of the dictionary's aspects from the lemmatization of compound terms to the alphabetical arrangement of phrases and collocations within an entry.

Out of the twenty-five sample dictionaries, sixteen contain a user's guide. Despite amounting to more than a half, the number cannot be regarded as satisfactory, considering that user-friendliness should be at the heart of the lexicographer's work. In addition, some of the user guides involved (e.g. HÁJKOVÁ) only comment on the dictionary article, not on the overall arrangement of the dictionary. On the other hand, it is true that most of the dictionaries lacking the guide (e.g. VEDRAL, RULÍK, VLK) are fairly simple in organization, thus the absence of instructions is not

felt as painfully as it would be in the more complex dictionaries such as CHROMÁ, STRAKA or PRŮCHA⁷.

The only exception is KALINA, an otherwise good dictionary, where the lack of the user's guide (and, additionally, a satisfactory preface) is somehow surprising, as the dictionary displays a complex microstructure with a great amount of lexical syntagmatic and implicit syntactic information. Here, the failure to include a user's guide must be regarded as a serious omission.

Before providing a more in-depth analysis of the user's guides in the sample, it needs to be pointed out that this front matter component is not called "User's guide" in any of the Czech bilingual dictionaries examined. Instead, it is called "Arrangement of the dictionary", "Article structure", "Basic arrangement of the dictionary", "Comments of the editors on the arrangement of the dictionary" and "Arrangement of the dictionary and comments on its use". As can be seen, not all of these headings are fortunate. The term "Article structure" is only limited to the microstructure, whereas a good user's guide should also report on the dictionary's macrostructure. The term "Comments of the editors on the basic arrangement of the dictionary" is precise, but rather long. The variant "Arrangement of the dictionary" appears appropriate, but does not imply the fact that the dictionary component in question is a set of guidelines. However problematic these headings are, they clearly suggest that the term "user's guide" is unfamiliar to the Czech lexicographic scene. Some suggestions regarding its appropriate Czech translation will be made in 4.4.1.

Examining the user's guides of all the sixteen sample dictionaries (see above), we can elicit the following categories of information covered:

- **Comment on the macrostructure type.** This is mostly a statement of the type of alphabetization, i.e. either letter-by-letter or word-by-word (no information can be elicited regarding the systematic dictionaries in the sample, as none of them contains a user's guide).
- **Comment on lemmatizing multi-word terms.** A note on how the multi-word terms are to be looked up (i.e. whether they are listed according to their head term or the first component).
- **Comment on the use of the tilde (~).** This is very frequently an independent instruction, explaining the function of this space-saving symbol (representing the head term in sublemmata to avoid repetition).
- **Comment on the microstructure.** Here, the article structure is explained and exemplified. The ordering of the microstructural information is stated (equivalent, grammar information, collocations, synonyms, etc.). The treatment of this section varies greatly across the individual dictionaries.
- **Comment on labelling.** The different types of labels (field labels, linguistic labels) are introduced and their use explained.
- **Comment on spelling.** This mainly concerns the spelling of the English part of the dictionary. One spelling variant is stated as primary (predominantly British spelling) and the way in which the secondary variants are labelled is then explained.
- **Comment on equivalence.** This part can contain some notes on the criteria of equivalent selection, such as in ŘÁDA: "Czech expressions are preferred to foreign synonyms used in Czech, with the exception of the cases where such terms are commonly used in aviation (*autopilot, kompenzování*) or in established compound terms (*svislý vzlet* but *vertikální dohlednost*)" [Řáda 2001, 10].
- **Other comments.** Each of these additional comments is usually found in no more than two or three of the sample dictionaries. This category comprises, for instance, comments on

⁷In some of these dictionaries, a number of user-oriented instructions are given in the preface. However, such a hybrid solution is not to be recommended.

homonymy, lemmatization of plurals, the system of cross-references, the inclusion of general language, comments of the selection of terms, etc.

The occurrence of the individual user's guide components in our sample is summarized in table 3.2, where the components are listed in order of frequency.

User's guide component	No. of occurrences	Percentage
comment on the microstructure	16	64%
comment on the use of the tilde	15	60%
comment on macrostructure type	13	52%
comment of lemmatizing multi-w. terms	13	52%
comment on spelling	11	44%
other comments	9	36%
comment on labelling	7	28%
comment on equivalence	3	12%
Total of dictionaries examined	25	

Table 3.2: The representation of the individual user guide components in the sample dictionaries, showing both the number of occurrences and the corresponding percentages.

Encyclopaedic section

It has already been stated that the overwhelming majority of the dictionaries analyzed are arranged in a strict alphabetical manner. When discussing this arrangement in 2.3.9, we stated that its inherent disadvantage is that, unlike the systematic macrostructure, it does not enable the user to gain an overview of the field in question, with its relations and hierarchies. This weakness of the alphabetical arrangement can be to some extent remedied by providing an encyclopaedic component in the front matter – an introductory section laying out the basic rules and principles of the field in question [Nielsen 1994, 98].

Although the use of the encyclopaedic section is widely recommended by the Aarhus authors, we find that the dictionaries in our sample lack this component altogether. The only dictionary that provides some front matter information on the field is RÁDA, where we find a diagram of aircraft types and two tables containing SI unit prefixes and radiophony spelling alphabet. The other dictionaries in the sample contain nothing of this kind. The total absence of the encyclopaedic section from the sample dictionaries appears to be due to three reasons:

1. The idea of the inclusion of the encyclopaedic section is relatively new in specialized lexicography and has not yet been reflected by the Czech dictionary-making scene.
2. Few of the LSP dictionaries published in the Czech Republic are strictly single-field. Providing encyclopaedic coverage of several fields at the same time is considerably difficult to implement, claiming too much space in the dictionary.
3. Some of the functions of the encyclopaedic section are served by the appendices of the sample dictionaries (especially STRAKA).

On the basis of all the front matters examined, we can safely claim that the concept of the encyclopaedic section is still alien to Czech specialized lexicography. The idea that the dictionary informs on the language, not on the subject field itself, seems to prevail.

Dictionary grammar

While the encyclopaedic section seeks to provide specialized knowledge of the field, a component called “dictionary grammar” should serve a similar function on the linguistic basis. Again, the idea of an independent grammar section is very much promoted by the Aarhus authors: “Linguistic information is particularly important in dictionaries intended for translation and text production, no matter whether the dictionary target language is the user’s native language or a foreign language. Detailed grammatical information is particularly called for in bilingual dictionaries where the target language is not the user’s native language” [Bergenholtz and Tarp 1 1994, 178].

As to the contents of the grammar section, it should comprise grammatical irregularities, information on parts of speech, the differences between the grammatical structures in the two languages and other grammatical features. The inclusion of a good grammar section can save space in the word list, as some grammar information need not then be provided in the actual dictionary articles (e.g. irregular verb forms).

Examining the sample dictionaries, however, we find a situation very similar to the one concerning the encyclopaedic section. No dictionary from our sample contains a component that could be considered a fully-fledged grammar section. The only dictionary providing a minimum of grammatical information in the front matter is VLK, where we find – within the introduction – a list of English versus American suffixes and a list of terms dealing with cars where American usage differs from British usage (the author uses the American standard in his dictionary and makes no further reference to British terms or spelling).

The main reason for the absence of grammatical sections in our dictionaries is the same as in the previous instance – the practice of including dictionary grammars is simply not firmly-rooted in Czech bilingual lexicography. Admittedly, we are only examining English-Czech and Czech-English dictionaries, and, therefore, we have to avoid hasty conclusions. The fact that English grammar is fairly well-known among a large section of Czech LSP dictionary users can indeed be responsible for the fact that its knowledge is taken for granted by the dictionary authors. However, we believe the same situation can be expected in the LSP dictionaries of other languages, considering that the authors are mostly field experts, not linguists. The potential usefulness of the grammar section will be discussed in Chapter 4.

Other front matter components

Besides the components dealt with above, the front matter of bilingual specialized dictionaries can contain some other elements whose existence can only be stated, as they do not provide enough material for analysis. Apart from the independent acknowledgements section, found in a minority of the dictionaries examined (acknowledgements are mostly included in the preface), the major component of the rather artificial category of “other front matter components” is the **list of abbreviations**.

With two exceptions, (VEDRAL and VLK), a list of abbreviations can be found in all the dictionaries contained in the sample. The items abbreviated range from morphological categories (*f* for feminine, *adj.* for adjective, *pl.* for plural) to specialized fields (*chem.*, *geom.*, *hist.*, *ekon.*). The abbreviations will be discussed in more detail in the section on dictionary labelling (see below).

3.3.2 Analysis of the back matter

Although not considered as important as front matter, back matter can contain relevant additional information that simply could not be included in either the front matter or the word list⁸. To quote a classic again, here is how the purpose of the back matter has been summarized by Sidney I. Landau: “The back matter of ESL dictionaries contains various linguistic aids specifically for the foreign learner: lists of irregular words, spelling guides, tables of ordinal and cardinal numbers.

⁸Although back matter comes after the word list in a dictionary, we include it after the front matter in the present analysis, as these two dictionary parts are very similar in character, hence the umbrella term “outside matter.”

ESL dictionaries also contain such old standbys as tables of weights and measures and punctuation guides" [Landau 1989, 117]. We can only add that besides linguistic information, the back matter can also provide useful encyclopaedic data, making up – to some extent – for the absence of the encyclopaedic section in the front matter. Again, as in the front matter, the back matter consists of a number of distinct components: the **appendix**, the **bibliography**, the **index** and the **informative label**.

The appendix

The appendix is a dictionary component in which all the additional information on the dictionary subject matter can be placed. The character of the information provided by the appendix depends on the character of the given dictionary field. Thus, a dictionary of chemistry can contain the periodic table, the dictionary of technology important weights and measures, the dictionary of law some examples of legal contracts in both languages, etc. Clearly, the appendix has an encyclopaedic function to fulfill. The information given in the appendix can be presented in the form of appended documents, tables, graphs, diagrams or illustrations (e.g. maps of countries, pictures of the human body, animals, machinery, etc.).

Let us now see to what extent our sample dictionaries make use of this back matter component. Out of the twenty-five dictionaries, eleven contain an appendix of some description. Obviously, the quality of the individual appendices varies greatly, from a multi-page overview of the relevant data from the LSP field to a mere list of specialized abbreviations used by the experts in the field.

The best appendix by far is to be found in STRAKA (a dictionary of business), where it amounts to several dozen pages of exemplary material, compiled not only with a view to the users' needs concerning business, but also with respect to their specific needs when consulting either the Czech-English and the English-Czech direction. To take this dictionary as an example, let us overview some of the data that the appendix comprises in either direction, beginning with the Czech-English direction:

- basic information on the Czech Republic (a map of the country, information about regions, selected indicators of national economy, etc.)
- addresses of Chambers of Commerce in the Czech Republic
- banks and other financial institutions in the Czech Republic
- doing business in the Czech Republic (taxation of resident entities, taxation of non-resident entities, tax assessments and payments, withholding tax)
- insurance in the Czech Republic
- educational system in the Czech Republic
- examples of commercial correspondence (Czech into English)

The English-Czech direction, in turn, contains the following:

- geographical and political facts on English-speaking countries (maps, regions, etc.)
- addresses of the Chambers of Commerce in the English-speaking countries
- accounting
- types of taxes
- incoterms
- types of insurance in the UK
- education in the UK and the US

- examples of legal forms of agreement

Such a comprehensive appendix adds another dimension to the dictionary – in addition to being a reference work on bilingual specialized terminology, it also becomes a source of information on the realia of the other-language country, a guide to some basic business facts and a textbook of commercial correspondence as well as basic English business phraseology in general⁹. To do justice to the other dictionaries in the selection, here are some ideas for the appendix information they have utilized:

- commentary on the selected terms from the field of sustainable growth; selected terms from the philosophical and value-based approach to the man-nature relationship (HÁJKOVÁ)
- a list of most frequent abbreviations used in law (KALINA)
- lists of Czech and European educational institutions and their most important documents (PRŮCHA)
- examples of some medical documents (a discharge letter, a standard discharge summary, a general practitioner's referral letter, etc.) in both languages; commented pictures of the human body (MURRAY)
- useful phone numbers in the UK, ferry lines, documents necessary for driving in the UK, some differences between the Czech and British traffic code, traffic signs in the UK in colour, etc. (MACHAČKA)
- conversion of metric and Anglo-American units (HANÁK)

In general, dictionaries of humanities are more likely to include an appendix than dictionaries of technology and natural sciences, although the opportunities for the inclusion of additional information are plentiful. There are two possible reasons why technical dictionaries might be less inclined to contain an appendix: the rather conservative and exclusively terminological background of many of their authors, and the multi-field character of these dictionaries.

The dictionary type that can be considered the most auspicious for including various additional features is the sub-field dictionary. Unfortunately, publishing such a dictionary is not very viable in our conditions, given the small size of the Czech language and the subsequent limitation of the dictionary market. Despite that, some of the dictionaries in our selection have managed to include a good-quality appendices that enhance the value of the reference works, and can serve as examples for future lexicographic projects.

Index

An index is a component informing users where particular information items are referred to in the dictionary. According to metalexigraphic literature, an index is an optional part of an alphabetical dictionary and a compulsory part of a systematic dictionary. In an alphabetical dictionary, the index usually only lists catchwords [Bergenholtz and Tarp 1994, 182]. In systematic dictionaries, however, the role of the index is far more important – it enables the user to find the dictionary article sought, as lemmata are arranged thematically and finding the desired one without an index represents a time-consuming task.

Although the theory of specialized lexicography lists the index as a legitimate part of a LSP dictionary, the Czech reality looks very different. Not a single one of the sample dictionaries contains an index, including the three systematic dictionaries. While the absence of the index is quite bearable in MACHAČKA due to its hybrid macrostructure, it becomes a real problem in the remaining two, MURRAY and HEŘMANSKÝ. The individual terms which we might be looking for are lost within the topic-based arrangement of both dictionaries, resulting in the user's having to leaf through the book in search of the corresponding lemma. HEŘMANSKÝ seems to be more

⁹For an extract from STRAKA see Appendix B

aware of this shortcoming and at least includes a list of the most common sporting events as the last category of terms listed. Murray, however, leaves the user absolutely helpless in the face of having to find a specific term in the dictionary, suggesting that the reference work is more of a textbook of medical English than a genuine dictionary.

To conclude, we can state that while in an alphabetical dictionary the index merely appears as a welcome luxury, in the systematic dictionary it represents a necessity that should be taken into consideration at the stage when the dictionary is planned. If omitted, the dictionary becomes an interesting overview of the subject field in question without serving the real needs of the users.

Bibliography

A bibliography is a dictionary component complementary with the preface, as it states the principle sources from which the lemmata were excerpted. For practical reasons, however, it tends to be included in the back matter. Out of the twenty-five sample dictionaries, only four provide a bibliography (ŘÁDA, HORÁK, HEŘMANSKÝ and CHROMÁ). The last-mentioned author divides the bibliography into three parts: dictionaries, textbooks and other sources. ŘÁDA, in turn, lists some important databases of aviation and magazines for hobbyists.

While not absolutely necessary as far as users' needs are concerned, the bibliography adds authority to the dictionary, as the sources used and stated can be surveyed by any interested user. Moreover, authors whose works have been used as a corpus by the lexicographer are given due credit. The practice of including a bibliography is therefore to be recommended.

Informative label

The informative label is the last component of the dictionary back matter, and the last component of the dictionary as such. This is due to its position, usually on the **back cover** of the dictionary (rarely inside the dictionary). Primarily commercial in purpose, the informative label provides a brief summary of the contents and the functions of the dictionary in a way that potential users may find appealing. Unlike the preface, this dictionary component will in all likelihood be read by buyers, so its language tends to contain a variety of commendatory statements concerning the dictionary size and usefulness.

Out of the twenty-five sample dictionaries, seventeen contain an informative label of some sort. The length and detail of description differ – from very detailed reports on the dictionary background and purpose (HORÁK) to a few sentences stating the lemma count and the LSP areas covered (BALEKA). In all, the information found in the sample informative labels can be classified into the following categories:

- dictionary size (number of entries or lexical units)
- intended users
- note on authorship and background to the dictionary
- LSP areas covered
- other features covered (slang, abbreviations, collocations, examples, appendix)
- contents of the entry (pronunciation, definitions, synonyms, etc.)
- information on macrostructure (e.g. quick lookup, etc.)
- a note on the special qualities of the dictionary (for marketing purposes)

The presence of the informative label on the back cover of the dictionary is the ultimate proof of the commercial aspect of lexicography. This aspect is further reinforced by the fact that some of the dictionaries in our sample have given up their back cover space for advertising.

3.3.3 Analysis of the macrostructure

As stated in 2.3.9, the term “macrostructure” refers to the arrangement of lemmata in the word list. In the present subsection, we will examine the different macrostructure types found in the sample dictionaries and discuss their strengths as well as weaknesses in relation to the dictionary user. The systematic macrostructure will be covered first, leaving the rest of the subsection to the treatment of the alphabetical arrangement.

Dictionaries with a systematic macrostructure

In the selection of the sample dictionaries, an effort was made to include some with the systematic arrangement to gain an overview of their characteristic features. As mentioned earlier, systematic dictionaries are in a striking minority among the dictionaries published in the Czech Republic. In our sample, they are represented by three reference works – MACHAČKA, HEŘMANSKÝ and MURRAY. Before they are subjected to a brief analysis, it must be pointed out that very few systematic dictionaries are purely systematic, i.e. devoid of any alphabetical ordering. What makes them “systematic” is their division into different subject areas which then can (or need not) be arranged alphabetically.

Out of the three systematic dictionaries, MURRAY displays the smallest extent of alphabetical ordering. The book is divided into a large number of short subsections (e.g. Surgical conditions, Common operations, Knee injury, Cardiac Arrest, Metabolism, etc.), some of which are alphabetical, while others are not [Murray 1995, 177]:

Descriptive words for a muscle

weak	slabý
strong	silný
functioning	fungující, funkční
non-functioning	afunkční, nefungující [...]
limp	splasklý, měkký
tense	napjatý

It is perhaps not difficult to understand why the author has given up on the inner alphabetical arrangement of a subsection like this. If we examine the lemmata closely, we can see that they form pairs of antonyms which would be lost if the the arrangement were alphabetical. Obviously, it is not always possible to arrange the terms into such antonymous pairs, but wherever there is an opportunity, the author does so. Similarly, he lists together terms of synonymous meanings, e.g. *floppy* and *flaccid*, *lithe* and *supple*, etc. Therefore, sense relations are given preference to the alphabetical arrangement where possible.

The arrangement selected by Murray, while providing an excellent overview of the conceptual field of medicine, is limited in its usefulness for the purpose of quick reference. As it lacks an alphabetical index at the end, finding the needed lemma is a time-consuming task. Thus, it resembles a bilingual textbook of medicine terminology rather than a dictionary designed for language reception or translation.

The other two dictionaries, MACHAČKA and, above all, HEŘMANSKÝ, are more thorough in their application of the alphabetical arrangement within the systematically presented subsections. While MACHAČKA still possesses a certain “textbook character”, providing not only terms, but also phraseology and conversational expressions related to motoring, HEŘMANSKÝ is a dictionary that has every potential to serve the reception or translation of English texts. The dictionary, dealing with the field of sport, is divided into sections according to individual sports and games (Aerobatics, Canoeing, BMX, Karate, Rugby, Riding, Yachting, etc.), followed by a section on general sporting terms. The alphabetical parts of the dictionary are arranged according to the letter-by-letter principle, using nesting to treat multi-word terms and collocations.

Although the dictionary offers an excellent overview of the vocabularies of the individual sports and games, a question needs to be asked: is this mixture of systematic and alphabetical macrostruc-

tures really user-friendly? Again, the question cannot be satisfactorily answered without considering the function of the dictionary – a rather difficult task, as the dictionary contains no preface where the function would be stated. Nevertheless, an attempt at an answer can be made. Despite its advantages, the systematic arrangement cannot be considered ideal as far as the user's benefit is concerned. The information cost is too high as the user has to do a great deal of searching before arriving at the desired lemma. This is true even in spite of the provision of the universal terminology section at the end. It can be assumed that a user-friendlier solution would be an alphabetical arrangement making use of field labels to indicate which sport/game the term belongs to. Terms of universal application would remain unlabelled.

To conclude, we can state that although systematic dictionaries represent a daring attempt at the representation of the conceptual fields of given LSP areas, their usefulness for quick reference and translation from or into the foreign language remains limited. They are helpful as textbooks of foreign terminologies rather than reference works enabling convenient lookup. Therefore, in comparison with conventional alphabetical dictionaries, their role is terminology- rather than lexicography-related.

Dictionaries with an alphabetical macrostructure

Having discussed the systematic dictionaries in our selection, we will now focus on the twenty-two alphabetical ones, examining the various types of alphabetical arrangement, their distribution across the sample and their appropriateness with respect to the character of the dictionaries.

As mentioned in 2.3.9, there are two basic ways of applying the alphabetical arrangement: the “word-by-word” and the “letter-by-letter” principle. The former respects word boundaries, while the latter only takes letters or graphemes into consideration. Studying the twenty-two alphabetical dictionaries, we find that the word-by-word arrangement is preferred by an overwhelming majority of them. Twenty-one dictionaries are ordered in this way; only a single one (BALEKA) uses the letter-by-letter system. The reason for the preference of this system is obvious: it gives rise to compact groups of terms, enabling clusters of multi-word terms to stay together [Merta and Mertová 1994, 48]:

digit
digit-by-digit
digit position
digital
digital image

The word-by-word arrangement, therefore, appears appropriate in dictionaries lemmatizing a larger number of multi-word terms. As these are inevitable in any terminology, it is not surprising that the word-by-word arrangement is given such preference by our specialized dictionaries. Some additional reasons for the suitability of the word-by-word principle will be given in 4.5.

Another division applied to the alphabetical macrostructure is the one between strictly alphabetical and nest-alphabetical arrangement. As discussed in 2.3.9, the strictly alphabetical macrostructure can be further subdivided into **straight-alphabetical** and **niche-alphabetical** (“**niching**”), both observing the alphabetisation principle, while the **nest-alphabetical system** (“**nesting**”) allows some interruption in the alphabet. Nesting can further be subdivided into **first-level nesting**, where the alphabet is only disregarded in relation to the preceding and following lemmata while observed among the sublemmata inside the entry, and **second-level nesting**, in which the alphabetical principle is also broken inside the entry due to morphosyntactic or other reasons. Each of these macrostructural choices is well-represented in the sample, as can be seen in Table 3.3¹⁰.

Out of the above-mentioned arrangements, the straight-alphabetical one is the simplest, most straightforward macrostructural choice. Each term is lemmatized separately as an independent

¹⁰Both nesting types are subsumed here under a single category of “nesting”.

Macrostructure type	No. od dictionaries	Percentage
systematic arrangement	3	12%
straight-alphabetical arrangement	9	36%
alphabetical with niching	8	32%
alphabetical with nesting	5	20%
total	25	100%

Table 3.3: Microstructure types in the sample dictionaries.

entry, and there are no sublemmata [Baleka 2003, 109]¹¹:

lead 1 vést
lead 2 olovo, olovnice
lead calm olověný prut
lead casting olověný odlitek
lead crystal olověný krystal

The obvious advantage of this system consists in its clarity. The information cost is very low, as the user does not need to search inside a network of sublemmata. On the other hand, the system is not without drawbacks, the greatest being a lack of economy. As each term has to be presented on a new line, a great amount of valuable space is lost. A more economical solution is to provide multi-word terms as niches or nests directly following the equivalent.

The straight-alphabetical system appears to be favoured by dictionaries of technology and natural sciences, whose authors are rather reluctant to experiment with more complex macrostructures, as well as by dictionaries with a small lemma count (such as BALEKA in our sample), where space does not represent a problem. Only two dictionaries out of the nine straight-alphabetical ones (see Table 3.3), KALINA and COLLIN, utilize the possibility of providing collocations and usage examples – without the sublemma status – under the individual lemmata¹². The other seven dictionaries consist of very simple entries without much linguistic information.

The next solution to the alphabetical arrangement of a dictionary is niching. In reality, niching is not dramatically different from the straight-alphabetical system, as alphabetization remains strictly observed. The only difference consists in the existence of sublemmata (which would be independent lemmata in the former system), arranged in niches headed by the main lemma [Hartmann and James 2001, 99]. The niche-alphabetical system can be realized in two ways. The first is the so-called **clustering**, whereby the sublemmata directly follow the main lemma article and then each other, i.e. they do not start a new line. This space-saving arrangement does not occur in a single one of the sample dictionaries. All the eight niche-alphabetical dictionaries display the other type of niching, called **listing**. Here, each sublemma is placed on a new line to allow easier orientation. According to [Nielsen 1994, 192], the sublemmata should be indented in order to be distinguishable from the main lemma. However, indenting is not present in any of the sample dictionaries. Moreover, none of the sample dictionaries provides the sublemmata in full; instead, they use the tilde in place of the niche lemma [Hanák et al. 1 1998, 11].¹³

abode bydliště
above nahoře, shora; nahoru, vzhůru; nad, mimo *dosah*

¹¹In connection with the two homonyms lemmatized, note how the failure to provide pronunciation in this dictionary may cause users problems regarding oral production.

¹²The provision of collocations in a straight-alphabetical arrangement is discussed, for instance, in [Nielsen 1994, 270-276]

¹³The possible drawbacks of using the tilde will be discussed in 4.8.1.

~-atmospheric pressure přetlak
 ~-grade wall část zdiva nad úrovní terénu
 ~-ground nad terénem, nad povrchem, nad zemí
 ~-ground storey nadzemní podlaží
 ~-roof nadstřešní, střešní
 ~-sea level nad mořem, nad hladinou moře
 abrasion obrušování, obrus, abraze

It appears that niching tends to be favoured by both dictionaries of natural sciences and of humanities. Moreover, the same type of niching (even as far as graphics are concerned) occurs in four dictionaries (STRAKOVÁ, both directions, and HANÁK, both directions) by the same publishing house, the Plzeň-based *Fraus*, suggesting some common guidelines for lexicographers working for this publisher. All of the sample dictionaries organized according to the niche-alphabetical principle employ listing, not clustering, in their presentation of sublemmata, resulting in an easily surveyable word-list virtually of the same information cost as the straight-alphabetical word list. The only minor problem is that in very long niche articles, it may take some time to trace the tilde sequences back to the niche lemma.

Finally, the last type of alphabetical arrangement found in the sample dictionaries is **nesting**. Referring to Table 3.3, we can see that this system is somewhat less popular than the two above-mentioned arrangements, yet its occurrence is not negligible. What constitutes its strength? As discussed earlier, unlike niching, nesting permits the interruption of a strictly alphabetical ordering. Therefore, apart from multi-word terms derived from the niche lemma, a nest can also contain collocations, valency examples or simply lemma-related terms that break the strictly alphabetical sequence, as seen in PRŮCHA [Průcha 2005, 24]:

diference/rozdíl/odlišnost difference [...]

diferenciace (rozdělování žáků podle schopností, prospěchu, zájmů) streaming/ tracking/

 differentiation

diferenciace podle schopností ability grouping

hyperdiferenciace / nadměrná diferenciace overdifferentiation

odstranění diferenciace destreaming

školní diferenciace academic tracking

digitální video / DVD [...]

A decision to be made before applying the nesting principle is how the nest is going to be organized. In niching, this problem does not arise, as the only possible arrangement is strictly alphabetical. Nesting, however, allows for the deviation from the alphabetical ordering, thus offering at least two ordering types. The first one, representing **first level nesting** mentioned earlier, is found in the example above: the sublemmata in the nest are arranged alphabetically, regardless of word class or other morphosyntactic criteria. The nest simply consists of a sequence of heterogeneous items, ranging from compound terms to collocations, arranged according to no other system than the alphabet.

The second possibility is offered by **second level nesting**, where several alphabetical sequences may occur inside the entry, the reason being morphosyntactic relatedness of certain sublemmata. Examples of such an arrangement can be found in CHROMÁ. Here, the nests are quite complex and rich in sublemmata, so some alteration to the alphabetical arrangement of the sublemmata has been adopted. Where nouns are lemmatized, the nest first alphabetically lists sublemmata containing premodification, before opening a new alphabetical sequence with items containing postmodification [Chromá 1995, 191]:

malice [maelis] *n* zlá vůle, potměšilost, zlovolnost; **actual** ~ výslovná zlovolnost; **constructive** ~ konkludentní/dedukovaná zlovolnost [...] **preconceived/premeditated**

 ~ promyšlený zlý úmysl; ~ **forethought** úmysl spáchat nezákonný čin; ~ **in fact**

výslovná zlovolnost; ~ **in law** úmyslné konání nezákonného činu bez spravedlivé příčiny

Similarly, where adjectives are lemmatized, syntagmata containing them in the attributive position are alphabetically listed before those where the adjectives appear predicatively. In verbs, again, simple collocations are listed before more complex syntagmata. The freedom of sublemma arrangement afforded by nesting is made full use of in this dictionary. On the other hand, CHROMÁ also displays some drawbacks of the nesting principle. The nest headed by the word **law**, for instance, stretches over three pages, making it rather difficult to find the desired term in such a complex network of sublemmata. A straight-alphabetical arrangement with the terms written out in full would make this task much easier. However, the dictionary would grow considerably in size.

Another, less common (and less transparent) type of nesting is found in ŠÍMA, a dictionary of geodetics. Here, the alphabetical principle used inside the entry ignores the head terms and is only applied to the second constituents of the sublemmata. As a result, the alphabetical ordering is somewhat obscured: [Šíma 1993, 7]:

atlas
dějepisný -
kapesní -
politický -
- světa
- školní
tematický -

In addition, the sample also contains dictionaries (e.g. RULÍK) where the subentries inside the nest are arranged haphazardly, without any apparent system. These, however, are rather extreme examples of second-level nesting. Although nesting allows disruptions in the alphabet, they should not be used randomly; some logic ought to be applied in the ordering of the nest.

In conclusion, it can be stated that an undoubtable advantage of the macrostructural devices such as niching and nesting is that items morphosemantically related are *seen* together by the user. The word “nest” is especially pertinent in this respect. The straight-alphabetical arrangement lacks this ability to “hold the related items together”. The result is a somehow fragmented impression of the terminology (see Appendix B for an example from VLK).

The last macrostructural problem that needs to be discussed involves the lemmatization of multi-word terms, as these can be integrated into the macrostructure in a number of ways. The following solutions are found in the sample:

1. **Multi-word terms are lemmatized according to their first constituent.** This solution, found in a majority of the sample dictionaries, is applied to straight-alphabetical and niched/nested dictionaries alike. It does not matter whether the first element of the term is the head constituent or not. The arrangement can result in long lists of multi-word terms beginning with the same word [Hájková et al. 1998, 319]:

soil
soil acidification
soil acidity
soil adhesion
soil aggregate ... etc.

In niched and nested word lists, the first constituent is usually replaced by the tilde to save space.

2. **Multi-word terms are lemmatized according to their head constituent.** This solution is found in a number of dictionaries with the nesting principle and, furthermore, in the Czech-English parts of several bi-directional dictionaries with a niched English-Czech direction (STRAKOVÁ, MALINOVÁ, HANÁK). The lemmatization according to the head constituent, however, does not represent pure niching, but some kind of “pseudo-niching”, well-suited to the character of Czech multi-word terms, as seen in the following extract [Straková, Bürger, Hrdý 2 2000, 132]:

identifikace *f* identification
~, **bankovní** bank identification
~, **datového prvku** data element tag
~, **druhá** generic identification

3. **Multi-word terms are lemmatized both according to their first constituent and their head constituent.** This is a minority solution applied to some important terms which the authors deem worth lemmatizing twice so that the user finds them as quickly as possible. Thus, for instance, in ŘÁDA, we find the term *landing gear* in two articles – under *gear* and then under *landing gear*. The two entries are linked by a cross-reference, while only one of these contains a full lexicographic description. Instances like these, although user-friendly, are rare. This is because too much space is lost by lemmatizing one term twice.

To conclude, the most straightforward and frequent principle of lemmatizing multi-word terms in the sample is lemmatization according to the first constituent of the term. The principle is present in both dictionaries of natural sciences/technology and humanities. Equally, it can be found in both straight-alphabetical and niched/nested macrostructures. The second principle, i.e. lemmatizing according the head constituent, can be found especially in the Czech-English directions contained in the sample. The third, combined principle (see above) is only applied exceptionally in some important terms.

3.3.4 Analysis of the microstructure

As suggested earlier, the term “microstructure” refers to the inner arrangement of the dictionary entry. Whereas the macrostructure guides the user to the desired lemma, the microstructure provides him/her with the information needed. Whereas there are relatively few types of macrostructure with limited space for innovation, the microstructure presents a greater opportunity for variation and creative choice on the part of the lexicographer.

The data for the analysis of the microstructures of the twenty-five selected dictionaries was sampled from two basic sources – the user’s guides of the dictionaries in question and the individual dictionary articles, studied carefully to elicit any information relevant for the analysis.

To carry out the analysis of such a complex structure, some common framework needed to be established. Drawing on the survey of a number of dictionary articles as well as the essential literature on specialized lexicography, especially Nielsen’s *The Bilingual Specialized Dictionary* [Nielsen: 1994], the following framework for the analysis of the individual dictionaries was worked out:

1. COMMENT ON THE LEMMA

- lemma presentation
- spelling information
- pronunciation
- lemma labelling

- grammar information

2. COMMENT ON THE EQUIVALENT

- equivalent presentation
- spelling information
- pronunciation
- equivalent labelling
- grammar information
- treatment of polysemy

3. ENCYCLOPAEDIC INFORMATION

4. LEXICAL SYNTAGMATIC INFORMATION (collocations)

5. LEXICAL PARADIGMATIC INFORMATION

6. USAGE EXAMPLES

Admittedly, the system is not flawless. For instance, for a Czech-English dictionary, some of the categories will be redundant, while others will be superfluous in the English-Czech direction (e.g. gender in nouns, labelling, irregularities in nouns and verbs, etc.)¹⁴. Furthermore, the ordering of information shown above may not be true for all the dictionaries examined. For instance, while most dictionaries give synonyms at the end of the article, in others the lexical paradigmatic information immediately follows the lemma. Finally, the model lacks the category of “pragmatic information”. This is due to the fact that this information tends to be hidden in a number of other microstructural elements, e.g. explanatory notes (which we subsume under non-linguistic information) or usage examples (which are classed as an independent element). Therefore, allowances for fuzziness of categories have to be made.

In conclusion, it must be stressed that the proposed system is not an attempt at creating a new model structure of a dictionary entry – that task has been successfully undertaken by others, especially Roberts [2001] and Nielsen [1994]. Instead, it is a working schema compiled for the purposes of the sample analysis so that information can be accessed and described as easily and efficiently as possible.

Comment on the lemma

The first thing that a user notices in a dictionary is the manner in which the lemma is presented¹⁵. According to Nielsen [1994: 207], **lemma presentation** is the “typographical presentation and placing of a lemma in relation to the entire dictionary article introduced by such a lemma”. In other words, it is the way in which the lemma is shown.

In a majority of the sample dictionaries (23 out of 25), the lemma is presented in boldface lowercase print. Two dictionaries (MURRAY and ŠÍMA) present their lemmata in plain lowercase text. In the case of MURRAY this is understandable, as the systematic dictionary lacks the typical microstructural features found in a majority of bilingual dictionaries. In the instance of Šíma, however, it is more difficult to understand why the author has given up the opportunity to highlight the headwords graphically. It may be due to the fact that the dictionary as a whole displays a very modest appearance, being a paperback volume with very low-end graphics. Notwithstanding these two cases, it can be safely claimed that the lemma presentation in boldface lowercase print is the norm for Czech bilingual specialized dictionaries.

When dealing with lemma presentation, note should also be taken of the presentation of sub-lemmata in the individual entries. There are several possible ways in which sublemmata (i.e. multi-word terms) can be shown:

¹⁴The information might not be redundant if the dictionary were designed to serve not only Czech but also English users. In practice, however, this is rarely the case.

¹⁵In Chapter 4, lemma and equivalent presentation are discussed more systematically under “Access structure”.

1. The head term is replaced by the tilde (~), the other constituents are given in full [Straková, Bürger, Hrdý 2 2000, 584]

výcvik *m* training
~, **odborný** vocational training, professional training
~, **speciální** special training
~, **základní** basic training

2. The head term is represented by its first letter, the other constituents are given in full [Kalina et al. 2001, 493]:

judicial soudní, justiční; soudcovský
j. assembly soudní shromáždění
j. authorities soudní orgány
j. branch soudní odvětví, složka
j. circuit soudní okres [...]

3. The compound term is provided in full [Rulík, Husák, Květ 1996, 53]¹⁶:

leaf (pl. leaves) list
leaf litter listový odpad
leaf surface listový povrch
leaf area listová plocha
leaf canopy listový zápoj, listovní

Out of the 15 sample dictionaries that contain sublemmata, eleven present them using the tilde, two using the first letter and two providing compound terms in full. The remaining ten dictionaries display the straight-alphabetical ordering, not including sublemmata at all.

Another aspect of the comment on the lemma is represented by **spelling information**. In the dictionaries examined, this information comes in three forms:

1. Information on general variation in spelling, such as found in RULÍK [Rulík, Husák, Květ 1996, 12]:

arrowhead (arrow-head) šípatka *Sagittaria sagittifolia*

2. Information on specific spelling features, usually shown in a shortened form in brackets [Chromá 1995, 18]:

acquit [e'kwit] /tt/ (*v*) 1 sb. *of* st. zprostit koho viny, osvobodit koho od čeho

3. Information on regional variation, mostly concerning the difference between British and American spelling. The differences are indicated by means of labels (*BrE*, *AmE* or *GB*, *US*) and cross-references.

¹⁶Note the twofold insufficiency of this entry: first, there is no consistent alphabetization of the sublemmata; second, the meaning of the headword does not correspond with the meanings of the multi-word sublemmata.

The examination of the twenty-five sample dictionaries shows that the information on regional spelling variation is by far the most common, being provided by 17 out of the 25 dictionaries. While most of these dictionaries are consistent in informing on the differences between British and American spelling, a minority of them lack thoroughness of approach and display some omissions. For instance, STRAKA states the spelling variants *colour/color*, but fails to state the variants *honour/honor*, giving only the British variant. Similarly, in BAŽANT 1, the different regional variants are lemmatized and cross-referenced, but they are not labelled, so the uninformed user does not obtain any information on the reason for the different spelling. The interesting fact is that in BAŽANT 2 (the E-Cz direction), the regional spelling differences *are* labelled, indicating that the two directions of the same lexicographic project can have a degree of autonomy and can, in fact, be regarded as two separate dictionaries.

To sum up the information on spelling, it can be stated that while the indication of regional spelling variation is the norm in Czech bilingual dictionaries, other types of information on spelling are rather rare, which must be regarded as an omission in dictionaries aimed at active use. Indicating syllabication, a device used in some bilingual dictionaries abroad, is missing from our dictionaries altogether.

The information on spelling may be followed by the indication of **pronunciation** of the given term. While including pronunciation is the norm in general purpose dictionaries, in specialized dictionaries it tends to be omitted, as the dictionaries often serve a passive function or are mainly designed for producing written texts. In addition, few of the sample dictionaries have been prepared by linguists; yet it is an author trained in linguistics who can assess the benefit of pronunciation to the intended user and deliver the information in a correct way.

We will now show if and to what extent pronunciation is provided in the sample dictionaries. A close examination reveals that out of the twenty-five dictionaries, only three (CHROMÁ, HÁJKOVÁ and HEŘMANSKÝ) include phonetic transcriptions of the lemmata. The remaining ones contain no pronunciation information whatsoever. As each of the three dictionaries is very different in the subject matter as well as overall structure, it is impossible to make any generalizations about what dictionary types tend to include pronunciation information.

In the three above-mentioned dictionaries, pronunciation is provided with every single lemma. However, only CHROMÁ provides adequate indication of stress alongside the phonetic transcription. HEŘMANSKÝ indicates stress inconsistently (and sometimes incorrectly) and HÁJKOVÁ provides no stress at all (see Appendix B).

Although lexicographers widely recommended using the International Phonetic Alphabet for phonetic transcription (see 4.6.2), the system employed in all the three sample dictionaries is a hybrid between the IPA and some specifically Czech characters, for instance:

obligee [obli'dži:, *am* ,abli-] [Chromá 1995, 208]

construction timber [konstrakšən timbə] [Hájková et al. 1998, 86]

association [əsəusi'ieiš(ə)n] [Heřmanský 2003, 200]

In HÁJKOVÁ and HEŘMANSKÝ, we do not learn anything more specific about the decision to use a hybrid transcription system – we are only given the information that “the transcription is based on British usage, employing the czechisized form of the international phonetic transcription” [Hájková et al. 1998, 10], and, very vaguely, that “the phonetic symbols used in the transcription comply with common dictionary usage” [Heřmanský 2003, 5]. The only dictionary that specifies the decision to include a hybrid transcription system is CHROMÁ, in whose preface we find a reference to some authoritative dictionaries from which the transcription was adopted (Hais-Hodek 1985; Jones 1977; Webster’s 1981).

Although the consistent use of the IPA is recommended by metalexigraphers, the decision to employ a hybrid transcription for Czech specialized dictionaries has its logic as far as more conservative users, unaccustomed to the work with foreign teaching materials, are concerned.

Many of these users will not be linguists, but experts and semi-experts in non-linguistic fields, who will undoubtedly appreciate not being overwhelmed with a greater number of strange characters than necessary. If the “czechisized” pronunciation is selected, it will be sufficient to provide IPA characters for those English sounds that do not have their equivalents in the Czech language (e.g. the mixed vowel). For the familiar sounds, the provision of Czech characters, such as [č],[š] or [dž], will be appreciated by these users.

On the other hand, there are also valid reasons for the consistent use of the IPA, especially as regards a new generation of users possessing the experience of work with monolingual ESL dictionaries, as argued in greater detail in 4.6.2. Ultimately, the informed choice of the transcription system will require careful consideration of the needs of the planned dictionary’s target users.

The category of comment on the lemma further includes **lemma labelling**. Two kinds of labels are distinguished – field labels, informing on the association of the lemma with a particular LSP field, and linguistic labels¹⁷, specifying the linguistic properties of the lemma (e.g. its origin, regional identity, degree of formality, register, etc.)

Field labels form a fairly uniform category, referring either to entire fields or subfields. There may be variation in the way they are presented. Usually, they are shown as abbreviations (*med*, *chem*, *arch*, *psych*), but they can also be written out in full (*astronomy*, *physics*, *engineering*, *law*) [Landau 1989, 181]. Linguistic labels form a much more varied category comprising a number of distinct types. Perhaps the most consistent typology of labels has been put forward by Franz Josef Hausmann [Bergenholtz and Tarp 1 1994, 132], as shown in table 3.4.

Label type	Unmarked ex.	Marked ex.	Example of labels
diachronous	contemporary	old	arch(aic)
diatopical	general language	regional	BrE
diainTEGRATIVE	standard language	foreign	Lat(in)
diamedial	neutral	spoken	colloq(uial)
diastRATIC	neutral	children’s l.	sl(ang)
diaphatic	neutral	formal/informal	fml/infml
diatextual	neutral	biblical	bibl
diafrequent	frequent	rare	rare
diaevaluative	neutral	loaded	humor
dianormative	correct	incorrect	err(oneous)
diatechnical	general l.	special l.	geol(ogical)

Table 3.4: A typology of dictionary labels according to Hausmann.

The last category shown in the table does not refer to linguistic labels, but field labels, called here “diatechnical”. Naturally, the typology outlined is not definitive; other categories could be added. We shall, nevertheless, give preference to this typology to any other existing ones due to the general acceptance it enjoys among lexicographers.

Let us now examine to what extent labelling is made use of in the sample dictionaries and which types of labels are used most frequently. The frequencies of occurrence of individual labels can be seen in Table 3.5, together with examples of some authentic labels. For practical reasons, the frequencies in the table do not only refer to the number of dictionaries labelling their lemmata, but also comprise the dictionaries labelling their equivalents. This is due to the fact that some dictionaries are English-Czech and other Czech-English, so the fact whether a lemma or the equivalent will be labelled depends on the direction. We are, therefore, interested in the total number of dictionaries containing individual types of labels, not in the dictionaries labelling lemmata only. As a result, the categories of “lemma labelling” and “equivalent labelling” can be blended into a single category with shared results.

¹⁷This term is consistently used by the lexicographers Bergenholtz and Tarp. Sidney Landau, in turn, uses the term “usage labels” – see 4.6.3.

Label type	No. of dictionaries	Examples
diatechnical	15	stav., geol., graf., liturg.
diatopical	10	US, BR, CAN, SA
diachronous	7	zast.
diamedial	6	hov.
diainegrative	2	fr., lat., ital.
diastratic	2	sl.
diatextual	2	kniž.
diafrequent	2	zř.
diaevaluative	2	žert.
diaphatic	1	fml., neformálně
dianormative	1	nespr.
Total of dictionaries	25	

Table 3.5: Frequencies of occurrence of individual label types, together with examples from the sample dictionaries.

It can be seen from the results that field labels are employed in almost two-thirds of the dictionaries, suggesting that labelling terms according to their LSP identity is a well-established practice in Czech bilingual specialized dictionaries. This claim is further reinforced by the fact that the majority of the dictionaries lacking field labels are strictly single-field, displaying no great need for diatechnical labelling, lest the authors wished to label sub-fields. With the exception of COLLIN (see Table 3.5), field labels are provided in an abbreviated form to save space.

Apart from field labels, diatopical labels, mostly indicating British or American usage, are also used, albeit not so widely. These labels are especially important in culture-dependent dictionaries, such those of law (CHROMÁ) or business (STRAKA). In 15 dictionaries, unfortunately, diatopical differences are ignored. This can be either due to the fact that there are no differences between British or American usage in the given LSP field, or the authors simply lack the will or expertise to make the distinction. An original approach has been adopted by VLK – the author bases the dictionary solely on American usage and lists the differing British terms in the front matter.

Out of the remaining types, only diachronous (indicating obsolete usage) and diamedial (marking spoken and written language) labels are represented in any noticeable measure. The use of other label types is rather sparse. The decision to include one or several of the “low-frequency” labels is always related to the character of the given LSP field. BALEKA, for instance, chooses to include diatextual (bibl.) and diainegrative (lat., ital.) labels, as it deals with the subject of art, rich in loans and biblical influences. Similarly, ŘÁDA provides diastratic labels (sl.), as the field of aviation contains a large number of slang expressions.

The last category we subsume under “comment on the lemma” is **grammar information**. The amount of it in a particular lemma will always depend on the direction of the dictionary. For a Czech user, a Czech-English dictionary involves going from the known into the unknown, so no great amount of grammar information will be needed in the lemmata, unless the dictionary is intended for Czech and English users alike (in which case the information should be addressed both to the lemma and the equivalent). An English-Czech dictionary intended for Czech users, on the other hand, will require a more extensive coverage of grammar, as the user starts with the unknown language, going into the known.

While grammatical information is taken for granted in general purpose dictionaries, whose main aim is to inform on general language, specialized dictionaries have a reputation of neglecting grammar and focusing on terminology only. Let us now examine what kind of grammar information is found in the sample dictionaries and to what extent it is represented.

Listed below are the categories found in the sample together with their most common ways of

representation shown in brackets:

- word class (*v, n, adj, přísl.*)
- gender in nouns (*m, f, n*)
- number in nouns (*pl, mpl, fpl, plt*¹⁸)
- irregularities in verbs and nouns (think – thought – thought, calf – calves)
- valency

Let us begin with the discussion of the **morphological information** found in the dictionaries, i.e. the first four information items in the above-stated list. These items are similar in kind to those commonly provided by foreign specialized dictionaries (see [Boud 1997]). The same can be said about their presentation, i.e. placement following the lemma, either directly, or after pronunciation information. In addition to the above-mentioned categories, however, specialized lexicographers also recommend the inclusion of countability, a nominal category useful for production in L2 [Schaefer and Bergenholtz 1994, 156]. However, countability is missing from the sample dictionaries. The only two exceptions include COLLIN, which accompanies all uncountable nouns with a short note stating “No plural”, and CHROMÁ, which does the same by providing the comment “*jen sg*”. The omission of information on countability can be said to reduce the suitability of the Czech LSP dictionaries for active/encoding function; the users either have to search for the information in a monolingual dictionary or are at risk of expressing themselves incorrectly, especially as far as the use of articles is concerned.

For space-saving reasons, information on morphology is presented in an abbreviated form in all of the sample dictionaries save for COLLIN again, where the categories are written out in full (*noun, verb, adverb*, etc). In many instances, the information items are presented in a smaller font and/or in italics. The reason is to save space and/or to distinguish the information from the lemma and its equivalent.

Let us now examine the frequency with which morphological information appears in the lemma sections of the sample dictionaries. For greater accuracy of results, we will adjust the sample slightly, as it consists of English-Czech and Czech-English dictionaries, with each direction requiring different lemma information. Thus, we will provide two different results for each morphological item - one for all the English-Czech directions in the sample (including those contained in bidirectional articles) and, similarly one for all the Czech-English directions. Containing 19 English-Czech directions and 12 Czech-English directions, the sample displays the following amount of morphological information:

Information item	E-Cz directions	Cz-E directions
number	7	6
word class	4	0
gender	0	5
irregularities	4	0
Total	19	12

Table 3.6: Representation of individual morphological items in Czech-English and English-Czech directions contained in the sample.

The results show that morphological information is provided in less than a half of the lemmata in both directions. The most frequent item is number, adduced in seven Czech-English dictionaries and six English-Czech dictionaries. Naturally, number is not indicated in every lemma, but only where a plural form (labelled *pl.*) is lemmatized, e.g. in names of animal species or in pluralia

¹⁸ pluralia tantum

tantum (often labelled *plt.*). Indicating noun plural is extremely useful in text production so that the user knows when to use a plural verb. Unfortunately, not all dictionaries provide this information. KALINA, for instance, fails to indicate plural in such business-related terms as *goods*, *arrears*, *credentials*, which can result in grammar mistakes if the dictionary is used as a tool for producing a written or spoken business text.

The next morphological item to be found in the lemma sections of the sample dictionaries is word class. This item only occurs in the English-Czech directions (CHROMÁ, ŘÁDA, HEŘMAN-SKÝ, COLLIN); none is found in the Czech-English ones. The reason is obvious – the word-class identity of a Czech term is self-evident to a Czech user, so there is no need to label the terms. The labels for word class can be standard ones, used by dictionaries worldwide (i.e. *n* for noun, *v* for verb, *adj* for adjective), or they can be purpose-made by the author on the basis of Czech grammar terminology, e.g. *p* for noun, *sl* for verb, *přísl* for adverb. This system, especially used by HEŘMANSKÝ, is not to be recommended, as users are already familiar with the international labels from their previous study of English, and using these ad-hoc labels only confuses them.

As regards the usefulness of labelling *all* the lemmata for word class, we assume it to be a largely superfluous practice in E-Cz and Cz-E dictionaries, as the translation equivalent will make the category clear. Only in a potential case of an ambitious dictionary project modelled on foreign ESL dictionaries, providing a greater-than-usual amount of linguistic information (not present in the sample, however), consistent labelling for word class can be used in combination with other explicit information items (countability in nouns, transitivity in verbs, etc. – see 4.6). In less complex dictionaries, indicating word class appears advisable only in specific instances, for example in terms which can be several word classes due to conversion (i.e. fire, grate, nest, switch, etc.) the labels can be used with the individual senses such as in this example [Řáda 2001, 136]:

duct s 1 kanál 2 potrubí • v vést kanálem / potrubím

Another nominal category to be marked in the dictionaries examined is gender. In some languages possessing grammatical gender (German, Dutch, Danish), labelling this category is vital in any dictionary, general or specialized. In dictionaries with natural gender, such as English, it is quite unnecessary. The results of our analysis indicate that this fact is accepted by Czech lexicographers, as none of them provides information on gender in the English-Czech direction. On the other hand, five provide gender in the Czech-English direction, as Czech is a language with grammatical gender. However, a question needs to be asked: is such information really necessary? The answer is no provided the dictionary is published for Czech users needing assistance with English texts. For a Czech user, the information on gender is absolutely redundant. On the other hand, if the intended group of users includes English speakers living and working in the Czech Republic, the gender information will be vital. However, none of the Czech-English dictionaries mentions English speakers as intended users in their prefaces. As a result, the information on gender can be regarded as unnecessary.

The last information item involves morphological irregularities, especially irregular verb forms and irregular plural. Predictably, these items are only found in the lemma sections of the English-Czech directions. Besides such general terms as *leaf* (pl. *leaves*), indicating irregular plural is extremely user-friendly in lower-frequency terms of foreign origin, such as the following one [Rulík, Husák, Květ 1996, 82]:

taxon (pl. taxa) taxon

Similarly, indicating irregular verb forms saves users from making mistakes in L2 production or having to consult a LGP dictionary when in doubt. Alternatively, a list of irregular verbs can be compiled in the front or back matter to save space in the individual dictionary articles. Unfortunately, the number of specialized dictionaries providing information on irregularities is very low, as can be seen from Table 3.6.

Apart from morphology, a truly user-friendly dictionary should also provide basic information

on the syntactic properties of lemmata, the information item in question being **valency**. The term “valency” is borrowed from chemistry, where it denotes the tendency of elements to attract other elements. In language, words of a certain kind need certain complements to form correct and meaningful expressions; these complements may be obligatory or optional. Valency occurs in nouns, adjectives and, most significantly, in verbs.

There are several basic ways in which valency can be indicated in a dictionary. The first, found mainly in monolingual ESL dictionaries, consists in formal indication of a verb’s transitivity (some examples from ESL dictionaries are shown in 4.6.4). The frequently used indicators are [I] for intransitive verbs, [T] for transitive verbs and [I/T] for verbs that can be both transitive and intransitive, but there are also other possible solutions. Naturally, the ESL dictionaries do not leave the formal information on its own and accompany it with usage examples in which the valency of the given verb is implicitly illustrated.

A close examination of the sample 25 dictionaries reveals that the practice of indicating transitivity is alien to Czech LSP lexicography. The explicit information on transitivity can be found in one dictionary only (HEŘMANSKÝ), where it has the form of the indicators *s př.* for transitive and *s nepř.* for intransitive verbs (see also 2.2). However, since these formal indicators are neither explained in the front matter nor supported by usage examples, their information value is almost zero as far as the expected user of this dictionary of sports is concerned.

Other ways of indicating valency besides the transitivity markers have been explored by [Svensén 1993, 93]. Here, two modes of presentation of valency information are distinguished. The first consists in providing basic prepositional patterns after the general translation of the headword¹⁹:

navyknout si get accustomed (to st.) [Topilová 1996, 97]

answer 1 odpověď (na dotaz); [...] **2** odpovědět, být v souhlase (s - **to**); reagovat (na - **o/to**), posloužit (jako - **for**) [Merta and Mertová 1994, 13]

The second way consists in the provision of valency examples in the source language, followed by their counterparts in the target language. Two types of valency examples are distinguished, “dead” and “live”. The so-called dead examples are constructed by the lexicographer and consist of elements that are neutralized into anonymous markers – infinitives, indefinite pronouns, etc. to indicate general applicability [Kalina et al. 2001, 17]:

accountable [...]

be a. to sb být zodpovědný komu

The live examples, on the other hand, are syntagmata using finite verbs and personal pronouns, constructed either by the lexicographer or edited from authentic texts²⁰. While their advantage is greater authenticity, the possible drawback is that the user may not be sure of their universal applicability [Svensén 1993, 91]. Again, let us consider an example [Collin 1996, 5]:

accuse *verb* ~ obžalovat; **he was accused of industrial espionage** = byl obviněn z průmyslové špionáže

Although knowing a term’s valency is essential for the purposes of second-language production and translation, its indication can be found only in nine sample dictionaries out of twenty-five, the majority of them dictionaries of humanities. Most often it is represented by the information of the first type or dead examples, if we adopt Svensén’s typology. Despite the effort of the authors of the

¹⁹The alternative is to split the valency information between the lemma component and the equivalent component; the practice varies across dictionaries.

²⁰In a way, Svensén’s live valency examples overlap with the category of “usage examples” discussed below. However, the latter exemplify a wide range of additional phenomena besides valency.

nine dictionaries to provide valency information for both verbs, nouns and adjectives, the overall situation cannot be regarded as satisfactory, considering the importance of the active functions of dictionaries. One possible reason why valency is hardly included in technical dictionaries is their general reluctance to lemmatize verbs. In dictionaries of humanities, a much greater percentage of verbs can be found (both taken from LSP and LGP), so there are more opportunities of indicating valency.

In conclusion, it can be stated that the lemmata of the sample dictionaries do not contain a satisfactory amount of grammar information compared with the requirements of theoretical lexicography and the real needs of users, especially with respect to production in and translation into L2. On the other hand, where the information is provided, it is largely presented logically as far as the dictionary direction and users' L1 and L2 skills are concerned.

Comment on the equivalent

As with the comment on the lemma, our treatment of the equivalent will start with **equivalent presentation**. Analogically to lemma presentation, it is the typographical presentation and placement of the equivalent in relation to the other dictionary elements. In a bilingual dictionary, it is important for the equivalent to be clearly distinguishable from the rest of the article. Moreover, it should also be easy to distinguish multiple equivalents from each other. In the sample dictionaries, three basic ways of equivalent presentation can be found:

1. The equivalent is presented in plain text as the rest of the article; the lemma is in boldface [Topilová 1996, 96]:

nastoupit (do zaměst.) enter (a job), (do funkce) accede to, (na trůn) ascend (to the throne)

2. The equivalent is presented in a smaller font than the lemma (together with the rest of the article) [Collin 1996, 11]:

affluent *adjective* bohatý, blahobytný

3. The equivalent does not differ in any way from the lemma and the rest of the article [Murray 1995, 243]:

Litholopaxy Lithopexie, Litholopaxie (pozn. překl.: rozbití ultrazvukem)

The first solution appears to be the rule in the sample dictionaries, occurring in twenty-three instances. Only COLLIN opts for stating the equivalent in a smaller font than the prominently-presented lemma, whereas MURRAY does not distinguish the lemma from the equivalent in any graphical means but a gap between them. On the whole, however, dictionary authors choose the same font for the equivalent as for the rest of the article. This procedure is objected to by Nielsen, who argues for the equivalent to be more prominent in the article, presenting it in boldface on a new line in every entry of his legal dictionary [Nielsen 1994, 269]:

contract n [retlight bindende aftale, der stifter et retsforhold]
kontrakt n

Compared with Nielsen's original system, the presentation of the equivalent in the same font as the rest of the article may not seem a very user-friendly procedure, as the equivalent can get lost

among the lexical paradigmatic, lexical syntagmatic and pragmatic data. However, in practical terms, a better solution is rather difficult to find. Printing the equivalent in boldface as well as the lemma, or in a different font altogether, would only make the article look over-combined, while adopting Nielsen's solution would inevitably mean losing a great amount of valuable space, as each equivalent would have to begin on a new line. Therefore, the system adopted by a vast majority of the sample dictionaries can be regarded as a viable, if not perfect solution. (In any case, straight-alphabetical dictionaries have a very simple microstructure, giving the equivalent enough prominence, whereas in niche- and nest-alphabetical dictionaries the changing of the boldface sublemmata and plain text equivalents makes these two elements stand out to a satisfactory degree.

The next two elements of the comment on the equivalent, **spelling information** and **pronunciation**, very much depend on the directionality of the dictionary. As the majority of the dictionaries in the sample are English-Czech, the information on spelling and pronunciation is provided in the lemma section, the users having no need to obtain information on Czech. In the Czech-English dictionaries, however, the relevant information should be addressed to the equivalents. While this is true of spelling information, pronunciation is not found in a single equivalent section. This is because out of the three sample dictionaries providing pronunciation, only one (HÁJKOVÁ) contains the Czech-English direction, yet this direction is practically stripped of all the linguistic information found in the English-Czech part of the dictionary. Due to this space-saving strategy, pronunciation must be searched in the English-Czech direction. This demonstrates the fact that an L1-L2 section of a single dictionary does not need to be an exact copy of the L2-L1 direction – economy is often the chief consideration here, although providing the information in the other direction as well would amount to a more user-friendly strategy.

The practice of **labelling** has already been dealt with above; the labels are either found in the lemma or in the equivalent sections, depending on directionality.

The direction of the given dictionary also decides the amount of **morphological information**. This will be addressed to the equivalent in a Czech-English dictionary. To gain a consistent overview, let us consult Table 3.7 for the amount of the individual morphological items (number, word class, gender, irregularities) in the equivalents.

Information item	E-Cz directions	Cz-E directions
number	2	2
word class	0	0
gender	1	0
irregularities	0	1
total	19	12

Table 3.7: Representation of individual morphological items in Czech-English and English-Czech directions contained in the sample.

The low numbers of morphological items shown in the table appear to be due to two factors. First, the lower ratio of Cz-E dictionaries in the sample means that there will be fewer dictionaries providing morphological information in their equivalents than there will be those providing in their lemma sections. Second, in bi-directional dictionaries there is a visible trend towards providing as much information as possible in the lemma, not in the equivalent. This results in the E-Cz direction containing information that is lacking in the Cz-E direction, with users having to refer to the E-Cz section if needed. The chief reason for the “poorer” microstructure of the Cz-E directions appears to be economy.

The last aspect of the comment on the equivalent to be discussed is the way **polysemy** is treated in the microstructure. In literature on specialized lexicography/terminography, a claim is often repeated that there is almost no polysemy in terminological dictionaries and that the “one

lemma - one equivalent" structure is the norm. Van Sterkenburg's *A Practical Guide to Lexicography* comments on this, "Keep in mind that because specialized lexicography is onomasiological ... and because it deals with a specific subject field, there will typically be only one definition for a given concept within that field. This differs from the semasiological approach used in general lexicography, where a single lexical item might be used to refer to multiple concepts" [Bowker 2003, 158-159]. Similarly, Fred W. Riggs contends that "Lexicography deals with polysemous lexemes. Terminography has no polysemy." [Bergenholtz and Kaufmann 1997, 93].

Although the "one concept-one term-one entry" situation appears ideal for an easy-to-use specialized dictionary, the practice somewhat differs from the theory. Let us consider two entries, each from a different sample dictionary:

bleeder svod, vybíjecí odpor; zatěžovací odpor; dělič napětí; odvodňovací potrubí [Malinová et al. 1993, 54]

bracket konzola; podpěra; rameno; držák; svorka; hranatá závorka; lomená závorka [Bažant et al. 1992, 110]

The entries show one lexeme referring to several concepts, all from the same field (as opposed to polysemy across fields). This phenomenon is actually quite frequent in specialized dictionaries (including those in our sample); there simply seem to be more concepts than terms within each field. Understandably, polysemy occurs most frequently in lexemes that are simultaneously part of the general vocabulary (such as *bias*, *feed*, *drift*, *bar* etc.), but it can also be found in more specialized terms. A notable exception among the sample dictionaries is *MINIHOFER*, which strictly observes the one-term-one-equivalent policy, placing potential words with the same or similar meaning separately as synonyms [Minihofers, Havlíček, Starý 1994, 451]:

quantitative linguistics (Ling.) kvantitativní lingvistika *f* SYN. jazyková statistika *f*
(*nauka o pravděpodobnostní struktuře jazyka*)

Faced with the existence of several equivalents for one entry term, the lexicographer needs to decide in what order the equivalents will be arranged. The most obvious choice is frequency, whereby the most frequent equivalent is given as first. However, this is only possible where there are frequency lists of the LSP field available. If the equivalents are listed in order of frequency, it should be so stated in the user's guide (as lay users are known for their tendency to pick the first equivalent without considering the others carefully). The frequency-based approach to equivalent ordering is only referred to in three out of the twenty-five dictionaries. In the remaining ones, the authors have probably arranged the equivalent using their linguistic expertise rather than corpus-based data.

As regards the presentation of multiple equivalents, there appear two basic ways of their presentation in the dictionaries examined. The first, more user-friendly procedure numbers the different senses of the term while separating synonymous equivalents by a comma [Chromá 1995, 242]:

proprietary (*adj*) 1 vlastník, majitel, držitel výlučného právního titulu k věci 2 vlastnictví, majetkové právo

The other, slightly more space-saving procedure is to separate synonymous equivalents by a comma, while separating the equivalents with a different meaning by a semi-colon [Malinová et al. 1993, 58]:²¹

breakpoint bod přerušení; *poč.* programované zastavení, místo programu s instrukcí

²¹Naturally, some mixed types also exist.

“stop”; bod zlomu (*teplotní redukční křivky*)

The last entry also suggests two ways in which different senses of a polysemous term can be distinguished and made more precise. The first one is represented by field labels (“*poč.*” in the example entry), the other by so-called “explanatory notes” or “context markers”. The latter category, both pragmatic and encyclopaedic in character, will be discussed in more detail in the next section.

In conclusion, it can be said that despite the claims of theoreticians, polysemy is an inevitable phenomenon in specialized lexicography, especially as far as multi-field dictionaries are concerned. This does not need to represent a major problem provided the individual senses are clearly distinguished, both graphically and by means of labels and explanatory notes.

Encyclopaedic information

Before discussing the amount of encyclopaedic information in our sample, a question needs to be answered regarding its purpose in a LSP dictionary. In earlier metalexigraphy, emphasis was placed on the strict division between dictionaries and encyclopaedias. It was Landau who stated, “Dictionaries are about words, encyclopaedias are about things” [Landau 1989, 6]. However, some more recent authors (especially the Aarhus lexicographers drawing on the work of Wiegand), have been pleading for greater inclusion of encyclopaedic information in specialized dictionaries. The concept of the “*Allbuch*” (all-inclusive dictionary) has been held as a recommended dictionary type, as it enables users to find both linguistic and field-related information without consulting several reference works. Accordingly, the dictionaries compiled in the “*Allbuch*” tradition contain (sometimes lengthy) definitions of the terms lemmatized or additional encyclopaedic information on them:

gene *gen* m
ancestral ~ ~ *ancestral*; a cancer causing ~ *un* ~ *causante de cáncer*; a chimeric ~ *un* ~ *quimérico*; determine the precise boundaries of a ~ *determinar los límites precisos de un* ~ [...]

In the case of the AIDS virus the protein might stimulate the transcription of viral genes (and perhaps the viral or host gene for soluble suppressor factor) while either inhibiting genes that stimulate replication of the T4 host cell or activating genes that turn off cell division. [Bergenholtz and Kaufmann 1997, 117]

Obviously, such generous provision of encyclopaedic information is only possible in minimizing single-field or sub-field dictionaries. To fit so much data into a maximizing or multi-field dictionary would require it to be electronic rather than printed.

However, informing the user on the subject matter of the LSP field is not the sole purpose of encyclopaedic data. Even in dictionaries providing overwhelmingly linguistic information (i.e. Wiegand’s *Sprachwörterbücher*), encyclopaedic information has a role to play. This role consists in guiding the user towards the correct equivalent where there are several, usually by means of labels and encyclopaedic notes, or in specifying the meaning of a problematic (e.g. culture-dependent) term. A special type of encyclopaedic labelling is the standard, usually ISO, DS or DIN, which tells the user that the term in question has been standardized. Finally, in culture-dependent dictionaries or dictionaries of relatively new fields (e.g. computing, ecology, etc.), encyclopaedic information applied to the lemma can help explain its meaning where an equivalent is missing, or where the term is little-known or problematic in any way.

Let us now examine the character and amount of encyclopaedic information contained in the sample dictionaries. Basically, four types can be recognized:

- citations from ISO norms
- author’s definitions specifying the term

- field labels
- explanatory notes

The first type is only found in a single sample dictionary, MINIHOFFER. Here, the authors have gone into great lengths to provide definitions for an overwhelming majority of lemmata, taken from either the Czechoslovak norm (ČSN) or the international norm (ISO). The number as well as the year of the norm are painstakingly recorded with every definition [Minihofer, Havlíček, Starý 1994, 195]:

error-detecting code (EDC) SYN. self-checking code, error-checking code (DS, DT) DEF. *A code in which each representation conforms to specific rules of construction so that their violation indicates the presence of errors.* (ISO: 2382-8: 1986) **detekční kód m DEF.** *Kód, který podle hodnoty kontrolních znaků umožňuje rozpoznat, že došlo k chybné dílčí informaci nebo signálu.* (ČSN 36 9001/18-1987)

The example reveals that MINIHOFFER is a dictionary belonging to the “Allbuch” tradition, giving equal measure of coverage to linguistic and factual information. However, it also suggests two possible shortcomings of this approach to dictionary production. First of all, we are immediately aware that the dictionary is not intended for quick lookup. The equivalent is buried among the amount of encyclopaedic information (in some lemmata requiring longer definitions this becomes even harder) and being rendered in plain text, it is difficult to spot. Secondly, it is questionable whether the definition needs to be both in English and Czech. While undoubtedly useful for the purposes of language production as well as reception, the doubled definitions make the article look rather cumbersome, especially in combination with all the other information, some useful (synonyms), some not (gender). Nevertheless, despite the over-elaborate design of its entries, MINIHOFFER represents a daring and valuable attempt at breaking away from the tradition of “bare-lemma-bare-equivalent” dictionaries.

The second type of encyclopaedic information is represented by two dictionaries, HÁJKOVÁ and COLLIN. HÁJKOVÁ deals with the subject of ecology, which (like MINIHOFFER’S communication systems and data processing) is a relatively new discipline where a considerable amount of terminology needs clarifying. Here, the authors have opted for definitions of unspecified origin, possibly modified definitions from various sources combined with the lexicographers’ own knowledge [Hájková et al. 1998, 309]:

sewage sludge [su: idž sladž] **splaškový kal**, *A sludge obtained as waste from the treatment of sewage.*

It appears that the system chosen by HÁJKOVÁ is more user-friendly than that used by MINIHOFFER. Here, the article is not burdened by references to ISO norms nor any unnecessary grammar information. In addition, definitions are not used so heavily as in MINIHOFFER – only with terms that the authors deem worth clarifying. The only drawback of this approach is the obvious inconsistency of the selection of terms to be defined. Thus, while such widely known term as “oscillation” is defined as *A variation of magnitude* [Hájková et al. 1998, 251], some other terms more deserving of a definition are left without one [Hájková et al. 1998, 251]:

orlon [o: lon] orlon

As regards COLLIN, the author also uses self-made definitions, applying them only to lesser-known or problematic terms [Collin 1996, 2]:

accelerated depreciation = systém odpisů, který v počátečním období vysokou měrou snižuje hodnotu aktiv a povzbuzuje tak firmu k investování do nového zařízení

However, such definitions are used much more sparsely than in HÁJKOVÁ, let alone MINIHOFFER. The irony is that although COLLIN calls itself a “defining dictionary” (“výkladový slovník”), it only uses definitions rarely, giving preference to Czech equivalents.

The third type of encyclopaedic information, i.e. field labels, has already been covered in the discussion of labelling (see above). Let us only repeat the fact that field labels represent a very powerful tool for disambiguation in cases of multiple equivalence.

Finally, encyclopaedic information occurs in our sample in the form of very short comments specifying and clarifying the meanings of terms. They can be particularly useful in the instances of polysemy in multi-field dictionaries. For want of a better term, we shall refer to them as *explanatory notes*. They are usually presented in brackets, italics or a smaller font as in the following examples:

commons [ˈkɔmɔnz, am. kamo-] (pl.) brit. občanstvo, měšťané třetí stav zastoupený v parlamentě [Chromá 1995, 69]

postgraduální student (*v ČR student po ukončení vysokoškolského studia*) postgraduate student (*v anglosaských zemích student po ukončení bakalářského studia*) [Průcha 2005, 93]

eleven[ilevn] p jedenáctka (fotbalové družstvo) [Heřmanský 2003, 228]

Sometimes the explanatory notes are more pragmatic in character – such notes are called *context markers* (see 4.6.6) – suggesting that we are dealing with a heterogeneous category which could be further subdivided. In any case, however, explanatory notes represent a very powerful tool for obtaining the correct equivalent without having to provide lengthy definitions. Their high occurrence in the sample dictionaries (see Table 3.8) demonstrates the awareness Czech lexicographers have of their usefulness.

Type of encycl. info	Occurrence in dictionaries	Percentage
ISO citations	1	4%
author's definitions	2	8%
field labels	15	60%
explanatory notes	22	88%

Table 3.8: Occurrence of individual types of encyclopaedic information in 25 sample dictionaries.

To summarize, there are four kinds of encyclopaedic information in the sample dictionaries. Two of them – citations from ISO norms and author's definitions – display a very low frequency of occurrence, proving that the concept of the *Allbuch* is still rather alien to Czech specialized lexicography. The other two, on the other hand, i.e. field labels and explanatory notes, are almost the norm for the sample dictionaries. This is undoubtedly due to the fact that they are space-saving, easy to create and, importantly, powerful in their ability to specify the meanings of terms and to guide users to the correct equivalents.

Lexical syntagmatic information

Although LSP dictionaries deal with sets of terms, no term exists in isolation. Therefore, a good specialized dictionary should provide some amount of lexical syntagmatic information to increase its usefulness for language reception, production as well as translation. Its extent will always depend on the type and function of the dictionary.

In the dictionaries analyzed, lexical syntagmatic information appears in the form of **collocations**. Before their occurrence in the sample dictionaries can be discussed, two theoretical

problems need to be addressed. Firstly, there is some division of opinion among linguists as to what constitutes a collocation. Two main approaches can be recognized – the English tradition, placing emphasis on the distributional basis of collocations, and the German tradition, adopting the semantic viewpoint and distinguishing between trivial word combinations and semantically distinct combinations [Bergenholtz and Tarp 1994, 118]. As the distinction between trivial and distinct combinations is not completely clear-cut, each lexicographer has to make his/her own choices which combinations are to be included and which left out. Secondly, there appears to be a fuzzy boundary between collocations and multi-word terms. Let us consider, for instance, the following entries from a sample dictionary of library science [Merta and Mertová 1994]:

book supply agency for librarians
library extension work
sloping newspaper rack
list of duplicates for exchange

Are we to regard these lemmata as multi-word terms or collocations? And what are the criteria for making the distinction? According to Bergenholtz and Tarp, contributors to the German manual *Fachlexikographie*, such criteria are very difficult to find, as there exists no semantic or grammatical method of analysis which would draw the line. The decision whether a certain expression is a term or a collocation can only be made by experts in the field, not linguists [Bergenholtz and Tarp 2004, 401]. At any rate, it is not always necessary to seek the separation of compound terms from collocations when planning a dictionary article, as will be shown below.

Out of the twenty-five dictionaries analyzed, fifteen contain collocations. This can be considered a mildly encouraging finding, compared with other types of information discussed earlier where the ratio is much lower. Again, as with valency, collocations have a greater tendency to appear in dictionaries of humanities. As regards the way in which collocations are integrated into dictionary structures, several distinct solutions can be recognized:

1. **Collocations are lemmatized.** This is a rare instance whereby collocations are not subsumed under a headword, but occur independently as headwords. Such lemmatized collocations can be found in straight-alphabetical dictionaries without sublemmata [Machačka 1998, 33]:

odpružení *n* **odpérování** suspension
odprýskávající lak flaky paint

2. **Collocations are provided in the articles in a separate section.** This solution is often applied in dictionaries which only lemmatize single-word terms, whereas compound terms are included as sublemmata. To separate the multi-word terms from the collocations, a special section of the article is allocated to collocations, usually towards the end [Chromá 1995, 182]:

lease nájemní smlouva; **head** ~ první nájemní smlouva mezi vlastníkem a nájemcem; [...] **parol** ~ ústní nájemní smlouva; **after the date of this** ~ po vstoupení této nájemní smlouvy v platnost; **expiration of the** ~ vypršení nájemní smlouvy; [...] **terminate the** ~ ukončit nájemní smlouvu

Here, the collocation section of the article is not indicated by any symbol, only by starting again from the beginning of the alphabet. However, some dictionaries use symbols, e.g. MALINOVÁ, which indicates collocations by a black square:

bit *m* bit (*binary digit*)

- ~, **adresové značky** address mark bit
- ~, **bezdatový** non-data bit
- ~, **doplňkový** *tlgr.* overhead bit [...]
- **bitově orientovaný** (*terminál, formát*) bit-oriented
- **počet bitů za sekundu** bits per second (bps)
- **prokládání po bitech** bit interleaving

This dictionary chooses to mark each individual collocation by a black square; this is possible due to the fact that collocations are only included here occasionally. Where the provision of collocation is more consistent, the suggested procedure would be to use the square (or any other symbol) only with the first item to mark the collocation section of the article; this would prevent the entry from becoming cluttered with symbols.

3. **Collocations are provided in the articles where they are mixed with multi-word terms.** This is a very convenient approach for the lexicographer, as he/she does not have to undergo the burdensome task of distinguishing between multi-word terms and collocations. The basic idea is that users themselves do not look for this distinction either as long as they can obtain the desired information conveniently. Both multi-word terms and collocations are grouped together in the article, arranged alphabetically [Kalina et al. 2001, 348]:

engagement závazek; ujednání [...]
break an e. zrušit závazek
business e. pracovní závazek
e. book zápisník s daty jednání, závazků
extricate oneself from one's e-s vyhnout se plnění závazků

For easier overview, the individual types of listing of collocations are quantified in Table 3.9. The results indicate that collocations tend to be provided in the articles rather than as independent lemmata. The two ways of integrating them into the article (e.g. keeping them in a separate section or mixing them with multi-word terms) appear to be equally popular with dictionary producers.

Presentation of col.	No. of dictionaries	Percentage
lemmatization of col.	3	20%
col. in articles, separate from multi-w. terms	6	40%
col. in articles, mixed with multi-w. terms	6	40%
total	15	100%

Table 3.9: Presentation of collocations in sample dictionaries.

Speaking of the treatment of collocations, two more of its aspects need to be briefly discussed. The first aspect involves the graphical presentation of collocations. Borrowing Nielsen's terminology [Nielsen 1994, 248], we shall call the source language collocation "phrasal item" and its target language equivalent "semantic paraphrasing item". While the semantic paraphrasing item is always provided in full, the phrasal item is often shortened to save space. One possible solution is abbreviating the main constituent of the collocation, the other using a repetition symbol (usually the tilde). Both of these devices are used in the sample dictionaries. In addition, some dictionaries (e.g. RULIK or PRŮCHA) provide the collocations in full. Finally, a note must be made on how the individual collocations are ordered in the articles. Basically, there are two possible ways: either they can be arranged in a purely alphabetical system according to their first constituents

(Example 1), or, alternatively, they can be listed according to word class of the main constituent (Example 2):

consent [kənsent] *n* souhlasný projev vůle [...] ~ **decree** soudní smír; ~ **rule** pravidlo souhlasu; **subject to** ~ podléhající souhlasu; **refuse** ~ **unreasonably** odmítnout bezdůvodně souhlas; **withhold sb's** ~ odmítnout dát svůj souhlas [Chromá 1995, 75]

map [maep] *p* mapa; **to fold the m.** skládat mapu, **master m.** mapa s vyznačenými kontrolními stanovišti, **orienteering m.** mapa pro orientační běh, **orienting the m.** zorientování mapy [Heřmanský 2003, 369]

It is perhaps needless to stress what an improvement to the dictionary quality the inclusion of collocations represents. Especially in some fields belonging among humanities, such as business or law, it is virtually impossible to imagine a dictionary without collocations, considering the large number of fixed expressions in the areas. It is interesting that even such macro- and microstructurally poor dictionaries of humanities as TOPILOVÁ do include collocations in their articles. In technical dictionaries, the provision of collocations is less frequent. Again, this cannot but be ascribed to the lexicographic conservatism of some of their authors.

Lexical paradigmatic information

Having discussed the presentation of lexical syntagmatic relations in the sample dictionaries, we can now turn our attention to lexical paradigmatic relations. These are usually presented in the form of information on synonyms and antonyms. As the indication of antonymy is totally absent from our sample, we will deal solely with synonyms.

Although specialized language is almost free of variation, synonymy²² is a phenomenon occurring in many terminologies, as illustrated by some of the synonymous pairs from our sample: *cynology - dog science*, *androgynous plant - bisexual plant*, *reliéfní tisk - tisk z výšky*, *vynechávka - mezera*, etc.

In a bilingual dictionary, two types of synonyms can be distinguished – synonyms addressed to the lemma and synonyms addressed to the equivalent [Nielsen 1994, 277]. We have dealt with synonyms addressed to the equivalent in the section concerning the comment on the equivalent. Here, we have made the observation that synonymous equivalents are customarily separated from each other by a comma, whereas equivalents of different senses are separated from the synonym cluster by a semi-colon.

Comparing the two types of synonyms, we note that while synonyms addressed to the equivalent are present in almost all the sample dictionaries, synonyms addressed to the lemma are present only in five dictionaries – HÁJKOVÁ, MINIHOFFER, HEŘMANSKÝ, PRŮCHA, RULÍK – out of twenty-five. This is understandable, as the user of a bilingual dictionary is naturally more interested in the equivalent than in the lemma. However, we believe that even synonyms addressed to the lemma are worth including in the dictionary, whether it be only in the form of cross-references, as they enhance the active L2 vocabulary of the user. For illustration, here are some abridged extracts from the five above-mentioned dictionaries, showing how the authors deal with the presentation of lemma-addressed synonyms:

aardvarks (pl.) [a:dva:ks] Hrabáči (pl.) **earth hogs (pl.)** **ant bears (pl.)** *Tubulidentata* [Hájková et al. 1998, 15]

error class SYN. type of error (Sw) třída *f* chyby [Minihofer, Havlíček, Starý 1994, 195]

²²By “synonymy” we mean *lexical* synonymy, not *lexicographic* synonymy, obtaining between lemma and equivalent or lemma and definition. Furthermore, we acknowledge that there are various degrees of synonymy, although full synonymy should be the norm in LSP.

konstrukt/teoreticky vytvořený objekt construct [Průcha 2005, 43]

moisture (cf. dampness) vlhkost [Rulík, Husák, Květ 1996, 58]

cricket player *p* (také **cricketer**) hráč(ka) kriketu [Heřmanský 2003, 153]

As we can see from the example, four different solutions are presented. In the first entry, the synonyms addressed to the lemma are rendered in a different font. In the second, synonyms are indicated by the abbreviation SYN. In the third, the synonym appears on the same level as the lemma, separated only by a slash. The fourth dictionary utilizes the command “cf”, cross-referencing the user to a lemma of synonymous meaning. Finally, the fifth dictionary uses the Czech word “také” (“also”) to draw attention to the synonym.

In all, each of these solutions represents an appropriate way of indicating synonymy without burdening the dictionary entry too much. In each of the cases, we can see the user benefitting from the provision of such information.

Usage examples

The final component of a dictionary microstructure to be discussed involves the category of so-called **usage examples**, illustrating the use of the term in context. Before we examine the occurrence of examples in the sample dictionaries, a few introductory comments need to be made on their character and function.

To provide a typology of examples, let us turn to [Schaefer and Bergenholtz 1994, 422-437], where three example types are recognized:

Citations (“Belege”) These are sentences taken out of authentic LSP texts without any modifications by the lexicographer. They may or may not be accompanied by a reference to the source.

Citation examples (“Beispiele”) Abbreviated and simplified citations which the lexicographer modifies to achieve user-friendliness, e.g. by leaving out redundant passages or adjusting the language to suit the intended user.

Competence examples (“Kompetenzbeispiele”) . Unlike the previous two, competence examples are totally made up by the lexicographer using his/her own language competence. They are convenient to produce, as they can be thought up within minutes or less, compared to the lengthy process of finding suitable citations. On the other hand, they can be rather artificial and subjective.

The above-mentioned classification is rather strict, excluding such patterns as collocations and valency examples. Ideally, a true example should consist of a whole sentence, not merely a syntagma; in reality, however, examples tend to have the form of both. The usefulness of examples resides in their potential to convey implicit information on a series of phenomena that would otherwise have to be specially indicated (countability, valency, pragmatic information, etc.).

In his article on examples, Henning Bergenholtz admits that despite their merit in presenting implicit information, examples are virtually missing from bilingual specialized dictionaries [Schaefer and Bergenholtz 1994, 422]. Do Czech dictionaries confirm his finding? When examining our sample, we can observe that the situation is not as bleak as he claims, although it cannot be regarded as satisfactory either. Besides a number of dictionaries containing collocations and grammatical exemplification, examples as defined by Schaefer and Bergenholtz are to be found in four dictionaries, KALINA, STRAKOVÁ 1, STRAKOVÁ 2 and COLLIN.

In KALINA, the examples do not occur as a separate microstructural component, but are alphabetically incorporated into the collocation and grammatical example section. Thus, towards the end of the article headed by the verb *agree* we find the following items [Kalina et al. 2001, 45]:

it is a-d that... bylo dohodnuto aby/že ...
on a-d terms na základě dohodnutých, přijatých podmínek
the accounts a. účty souhlasí
the figures were a-d údaje byly schváleny
the statement does not a. with the facts prohlášení neodpovídá skutečnosti

Whereas the first item represents a grammatical example (illustrating the valency of the verb *agree*) and the second a collocation, the last two can be regarded as true usage examples (despite the lacking punctuation and the space-saving shortening). The third item may be regarded as either a collocation or an example. Seen as an example, it can be understood to contain implicit information on the collocability of the verb. All of the usage examples included in KALINA are competence examples, deliberately short to save space and to convey the information to the user in the simplest possible manner. In STRAKOVÁ 1 and 2, examples are presented within the article in the same font as collocations (bold italics).

In COLLIN, the fourth dictionary containing examples, we can actually find two example types. The first is identical with the one found in KALINA, i.e. a competence example in the form of an unpunctuated sentence, illustrating the context of the headword (see the extract below). The other type represents a rather unusual yet imaginative solution which adds attractiveness to the dictionary. It consists in placing framed citations below the article, with the sources (usually prominent business journals) stated. The whole article thus displays the following structure:

affect *verb* postihnout ~mít nepříznivý vliv; **the new government regulations do not affect us** = nové vládní nařízení nás nepostihne; **the company's sales in the Far East were seriously affected by the embargo** = odbyt společnosti na Dálném východě byl vážně postižen embargem;

<p>the dollar depreciation has yet to affect the underlying the depreciation has yet to affect the underlying the inflation rate <i>Australian Financial Review</i></p>

Naturally, neither of the dictionaries provides examples with every entry. They are only included where there is a need for syntactic or pragmatic specifications of the term. As a result, the dictionary size is not seriously threatened by their inclusion, while the user benefits from them considerably, especially in the instances of second-language production or translation. Out of the two types found in the sample dictionaries, the competence examples incorporated into the article are more space-saving and thus practical, while the framed examples with indication of sources enliven the dictionary page and add authenticity to the exemplification provided.

3.3.5 Analysis of the cross-reference structure

Unlike the micro-and macrostructure, the cross-reference structure has only recently been paid more systematic attention by lexicographers. The most important contribution to its study has been made by Sandro Nielsen, who has produced a theoretical framework for the cross-reference structure, otherwise called the "mediostucture", of a specialized dictionary. As Nielsen's classification is rather complex, we will only use some of its aspects.

Basically, a cross reference is a word or a symbol used in a dictionary (or any other reference work) to enable access to some related information. Cross-references can be divided into **dictionary-internal**, linking items within the dictionary, and **dictionary-external**, referring to a source outside a dictionary (e.g. an ISO standard, a LSP textbook or an encyclopaedia, etc.). Furthermore, according to Nielsen's proposed typology, cross-references can be **use-oriented** or **function-oriented** [Nielsen 1999, 94] While the former link information that facilitates the use of the dictionary (e.g. referring to different parts of the user's guide or dictionary grammar), the latter contain information that enables the user to find answers to his/her questions, whether they are reception-, production- or translation-related.

In our brief analysis, we shall discuss the most common cross-reference symbols found in the sample dictionaries, the situations in which they are used and the frequency of their occurrence in the sample. Obtaining information about the use of cross-references in a particular dictionary is easiest where the system selected is explained in the user's guide. Unfortunately, a number of the sample dictionaries fail to mention the cross-reference structure in their user's guides, taking the user's familiarity with the system employed for granted. This makes the analysis rather time-consuming.

In total, cross-references – whether function- or use-oriented – are found in thirteen out of the twenty-five dictionaries, i.e. roughly in half of them. Listed below are the individual purposes for which they are used, together with the corresponding indicators used across the dictionaries. Examples from the sample are given.

1. Referring to synonymous lemmata: *viz; see; také; cf.; →*. In the following example, two commands are combined in one entry:

postížený → **handicapovaný** handicapped/disabled (*viz pozn. u hesla handicapovaný*) [Průcha 2005, 66]

2. Referring to full forms of abbreviations or spelling variants: *see, viz*

dorbeetle *see* dor beetle [Hájková et al. 1998, 111]

3. Referring to a related lemma or additional information: *viz též; see also*

hub airport uzlové/střediskové letiště; **VIZ TĚŽ hub-and-spoke system** [Řáda 2001, 200]

4. Referring to another part of the front matter: *viz též níže, viz např.* Unlike the previous three, this type is use-oriented [Straková, Bürger, Hrdý 2 2000, 8]:

Hesla jsou řazena abecedně, terminologické vazby pak podle prvního slova, resp. řídicího podstatného jména v prvním pádě (*viz též níže*)

The single most common function-related cross-reference is “viz” (in plain text, italics or smaller font), the others occur in individual instances. For example, the arrow as a mediostructural symbol is used only in one dictionary (PRŮCHA), although foreign bilingual dictionaries make a frequent use of symbols due to their conspicuousness [Nielsen 1994, 285]. Use-related cross-references occur rather exceptionally, in dictionaries with well-written user's guides (STRAKOVÁ, CHROMÁ).

The fact that twelve of the sample dictionaries do not contain any mediostructure must be regarded as unsatisfactory, considering the extent to which terms are related to each other in most terminologies. A high-quality specialized dictionary is hardly thinkable without at least a basic mediostructure establishing links between relevant items inside and outside its word list.

3.3.6 Additional aspects of the dictionaries analyzed

Having analyzed the components and structures of the sample dictionaries, two additional aspects remain to be briefly treated. The first is the presence of general language in specialized dictionaries, the other equivalence.

LGP versus LSP in the sample dictionaries

In 2.3.2, some theoretical comments were made regarding the inclusion of general vocabulary in specialized dictionaries. A study by Bergenholtz was used to illustrate the fact that LGP does occur in most specialized dictionaries, and a distinction was made between LSP terms, non-LSP terms, and “doubtful cases” (*Zweifelsfälle*). We shall now examine the occurrence of general vocabulary in the sample dictionaries and attempt to provide a justification for its presence therein.

As apparent from the examples below, general vocabulary can be found all over the sample, practically in every dictionary except the strictly terminological *MINIHOFER* (which, however, contains a number of the *Zweifelsfälle* mentioned in 2.3.2). LGP entries are equally present in dictionaries of humanities and natural sciences/technology:

- dictionaries of business:

odstranit remove, eliminate, do away with [Straková, Bürger, Hrdý 1 2000, 272]
dictate diktovat, přikazovat co, vyžadovat [Kalina et al. 2001, 306]

- technical dictionaries:

profile profil, tvar, obrys [Malinová et al. 1993, 336]
accident nehoda, porucha, havárie; úraz; náhoda [Bažant et al. 1 1992, 14]

- dictionaries of the environment:

building budova, stavba [Horák 1999, 25]
significance význam, významnost, smysl, hodnota [Hájková et al. 1998, 312]

- dictionaries of social sciences:

list 1 seznam, soupiska, sestava, přehled; inventář; katalog, index **2** vypisovat složky
[Merta and Mertová 1994, 91]
matka mother [Průcha 2005, 48]

How do we account for such a noticeable presence of general vocabulary in specialized dictionaries? One of the reasons why “general” words appear in dictionaries is exactly because they belong to the third category of Bergenholtz’s *Zweifelsfälle*. For instance, the above-stated term *list* would be regarded as a general word by most users (its common uses including e.g. *shopping list*, *waiting list*, *list of suspects*, etc.). However, apart from its general meaning, *list* also has a series of field-specific meanings; here, in the dictionary of library and information sciences, it means “inventář, index, katalog” and “vypisovat položky”. The inclusion of seemingly general words in a LSP dictionary is, therefore, necessary in cases where they have an additional specific meaning as specialized terms.

However, not all general words in specialized dictionaries are specialized terms in individual fields. For instance, the word *odstranit* (see above) can be regarded as a general word par excellence. Why, then, do lexicographers include such words in their dictionaries? The possible answer is to do with the frequency with which these words appear in the specific field. When compiling a corpus of subject-related texts, the lexicographer cannot fail to notice that some words, although not specialized terms, occur frequently in the texts. These words (space permitting) can be considered worth including in the dictionary, as the user does not need to consult a general

dictionary when encountering them in a field-specific text. Lemmatizing these general words is, simply, a user-friendly procedure, user-friendliness being one of the key aspects to be considered when compiling any dictionary.

Equivalence

Equivalence in bilingual dictionaries is a complex subject matter which has been studied in detail by leading lexicographers such as Zgusta, Wiegand, Al Kasimi, Šarčević and others. Without going too much into detail, we shall identify some of the main problems concerning equivalence in LSP dictionaries and examine how they are represented and treated in the sample dictionaries.

As already suggested in 2.3.2, there are three basic types of equivalence – full, partial and zero²³ Although specialized dictionaries should ideally contain only full equivalents, being terminological in nature, many of them – especially the culture-dependent dictionaries of humanities – contain a percentage of partial equivalents as well. The reason is the anisomorphism between the source and target terms: “Because of the anisomorphism of languages, such absolute equivalents are rather infrequent (outside the domain of scientific terminologies). The usual situation is that the lexical meaning of the respective lexical units of the target language is only partly identical with that of its counterpart in the source language” [Zgusta 1971, 312].

For an equivalent to be classified as “full”, it needs to have exactly the same semantic and pragmatic features as the source term; the two need to be interchangeable in all contexts and possess the same connotations. In technical terminologies, where connotations are rare, full equivalence is the rule rather than the exception. In culture-dependent terminologies, however, there are instances of equivalents possessing connotations that are not present in the source language terms. Let us, for instance, consider the English business term *capitalist*. To use an existing loanword *kapitalista* would be inappropriate due to its negative connotations. Therefore, COLLIN correctly avoids the Czech translation by choosing a neutral explanatory equivalent: “osoba, která investuje peníze do obchodu” [Collin 1996, 58].

In judging the degree of equivalence, two concepts are crucial – that of *intension* (a set of defining features) and *extension* (a class of entities to which the term can be applied). For instance, the Czech term *papoušek* and the English *parrot* have the same intension, referring to a type of bird with certain physical features, but they have different extension: the Czech term refers to all the birds displaying those features, while English uses the additional term *parakeet* to refer to one subtype of the genus, the extension of *parrot* thus being narrower. However, it is the intension that plays a decisive role in the degree of equivalence: the higher the degree of intension between the source and the target term, the higher the degree of their equivalence.

To be able to judge the appropriateness of the selected equivalents in individual specialized dictionaries, one in fact needs to be an expert in the given LSP field. Thus, for example, Nielsen is able to provide detailed evaluation of equivalence in several bilingual law dictionaries, as he himself has legal background [Nielsen 1994, 155-178]. Since our options are limited in this respect, we shall only provide a brief outline of the most common equivalence problems encountered in the sample dictionaries.

One problem that dictionary authors meet with is the absence of a suitable Czech equivalent term. A possible way to deal with this terminological gap is to provide an exact translation of the English term into Czech (a calque) or, alternatively, to devise a completely new Czech term. This procedure, however, is not without pitfalls, as it could result in the creation of a hapax legomenon or an inadequate term. This is recognized, for instance, by ŘÁDA in the preface: “In some entries, an English (czechisized or original) term is used instead of a Czech one; these are instances where the English loanword is customarily used in the Czech environment, any effort at its translation being misleading or impractical (*jetstream*, *microburst*, *racetrack*) [Řáda 2001, 10]. The sample contains a large number of such terms, whether left in the original spelling or czechisized, e.g. *flyš* (HÁJKOVÁ), *airbag* (VLK), *šagrén* (MERTA), *touchdown* (HEŘMANSKÝ) and others.

²³Some authors propose a number of additional degrees, such as “near-equivalence”, “approximate equivalence” and “remote equivalence”. However, the three basic categories will suffice for our purpose.

Another problem encountered by the authors of the sample dictionaries is a lack of a single equivalent that would satisfactorily convey the meaning of the original term. There may be several equivalents available, but none sufficient on its own. Therefore, they have to be used in combination; sometimes even accompanied by an explanatory note [Řáda 2001, 171]:

foolproof hov blbuvzdorný, jednoduchý, spolehlivý (*odolný proti nesprávné obsluze*)

Explanatory notes in general are a very powerful means of specifying meaning where Czech equivalents are not precise enough. This is especially true of terminologies of humanities, where different cultural backgrounds, customs and practices make translation difficult. The weakness of terms translated by means of imperfect equivalents accompanied by explanatory notes is that while sufficient for receiving (understanding) foreign-language text, using them for the purposes of translation into the native language presents difficulties. Such would be the case of the following entry [Chromá 1995, 91]:

decertification *n* zrušení potvrzení pro odbory, že mohou zastupovat všechny zaměstnance

The same problem – adequacy for reception but reduced suitability for translation – is also found in another type of equivalent applied where a target-language term is missing. Called the *explanatory equivalent* [Zgusta 1971, 325], it is a basically group of words providing a brief description of the given term [Collin 1996, 219]:

lame duck podnik, který má finanční potíže

Sometimes, where even an explanatory equivalent cannot satisfactorily convey the message of the second-language term, an *explanation* has to be provided, a definition similar to those found in the monolingual dictionaries [Zgusta 1971, 325]. These instances are extremely rare in the sample, while explanatory equivalents are common, especially in dictionaries of culture-dependent fields.

A frequent problem encountered in the sample is a source language term having several target-language equivalents, each with a slightly different intension. A good dictionary should be able to indicate the differences in meaning, whether by explanatory notes or, like in the following example, by more extensive encyclopaedic information [Průcha 2005, 18]:

cíl (2. *v pedagogickém smyslu*) aim / goal / objective / target (*Podle Dictionary of Education, 1998, jsou to synonyma, odlišovaná mírou obecnosti: aim je nejobecnější, objective je nejkonkrétnější. Podle Švece, 2002, "aims" jsou cíle obecné, rámcové, strategické; "goals" jsou cíle programové, institucionální; "objectives" jsou specifické, operační cíle.*)

In addition, a brief note must be made on zero equivalence in the sample. As mentioned in 2.3.2, no term should be left without an equivalent, even if the equivalent has the form of a definition-like explanation. Therefore, zero equivalence should not occur in specialized dictionaries, and, indeed, no lemmata in the sample are left without an equivalent. However, lack of equivalence can manifest itself in a different way, for example in the absence of an important term from the dictionary. A case in point is the above-mentioned PRŮCHA, an otherwise good-quality Czech-English dictionary of education which does not avoid idiosyncracies of the Czech educational system and attempts to bridge the anisomorphism of terms by explanatory notes and encyclopaedic comments. However, some important education-related terms are missing from the dictionary, the most striking one being the very common term *skripta*. Is it simply an unintentional absence, or did the author leave the term out owing to the difficulty in providing an English equivalent? In the latter case, the omission would be far more regrettable.

Besides the absence of important terms due to lack of appropriate equivalents, another problem is represented by providing equivalents that are incorrect or imprecise. This mostly occurs in

dictionaries of lower quality which bear signs of haste and insufficient lexicographic expertise. One such example is VEDRAL, a dictionary of biotechnology, in which we find the following entry [Vedral 2002, 3]:

boar's capacity to mate and fertilize potence

This entry is grossly imprecise as the capacity to mate and fertilize is not restricted to boars only (but also to bulls, rams and other animal males). Thus, the correct entry would be, for instance, either of the following:

boar's capacity to mate and fertilize potence u kanců
capacity to mate and fertilize potence

Fortunately, similar instances are very infrequent in the sample and do not thus represent a major problem. Having carried out some test translations of various LSP texts using the sample dictionaries, we believe that for a non-expert or a semi-expert, the greatest obstacle regarding equivalence is the selection of a correct equivalent out of several offered if there are no labels or explanatory notes present. This was confirmed when completing a translation of a business contract between the University of West Bohemia and the Leibniz Institute of Ecological and Regional Development Dresden (IOER), where the terms “agent” and “principal” continued to appear, as in the following sentence:

Technical and organisational questions of the processing of orders are discussed between principal and agent directly.

Having consulted, [Straková, Bürger, Hrdý 1 2000], a sample dictionary of business, the following equivalents were obtained for the two key terms:

agent agent *m*, zástupce *m* (*obchodní*), zprostředkovatel *m*; zmocněnec *m* k jednání, činitel *m*; faktor *m* (*osoba*)

principal šéf *m*, mistr *m*, vedoucí *m, f*, zmocnitel *m*, příkazce *m*, jistina *f*, kapitál *m*, základ *m* půjčky; hlavní, základní

Undoubtedly, an expert will have no difficulty arriving at the correct equivalent. However, a semi-expert or a non-expert will be in danger of choosing an incorrect equivalent or one that is not wrong as such but simply not customarily used in contracts of this kind. It needs to be pointed out that the other sample dictionaries dealing with business/law (CHROMÁ, KALINA, COLLIN) did not prove much more helpful than STRAKOVÁ, having provided answers suggesting that some prior knowledge on the part of the user is expected. If the pair of terms “agent” – “principal” is frequent in business or legal contracts, the customary equivalents would be worth pointing out, perhaps by including a short explanatory note. e.g. (*v obchodních smlouvách*) and cross-referencing the two terms to indicate their relatedness. However, such an approach presupposes a good knowledge of user needs; provided that semi-experts and, possibly, non-experts are among the target users, more consideration needs to be given to the problems they may encounter when translating LSP texts.

To conclude, we can state that equivalence problems are, predictably, more frequent in sample dictionaries of humanities, which represent culture-dependent fields. In technical dictionaries, the chance of a one-term-one equivalent correspondence is much higher than in the former dictionary type. Where a full equivalent is missing, the dictionaries use a variety of means to convey the meaning of the term, e.g. explanatory notes, encyclopaedic comments, explanatory equivalents, etc. The greatest difficulty for the non-expert user consists in having to choose from several

equivalents where no context specification is provided.

3.4 Dictionary user research

Before a final evaluation of the sample dictionaries is presented, one last topic remains to be dealt with – that of dictionary user research, a lexicographic activity currently growing in importance in connection with the user-oriented approach to dictionary-making. Basically, *user research* is an umbrella term for several methods employed to research the reference needs and reference skills of dictionary users [Hartmann and James 2001, 152]. In the present section, we shall provide an outline of the most important methods and, in addition, present the results of an original mini-survey carried out in 2005 using one of the sample dictionaries.

Questionnaire. This method of user research is probably the oldest, dating back to the 1960s. Pioneered by the American lexicographer Clarence Barnhart, it contributed to the development of learner's dictionaries by discovering that the most popular information item in dictionaries was meaning, the least popular being etymology [Hartmann 2003, 434]. Since then, questionnaires have become a much-used technique of dictionary research, as they are able to survey a relatively large sample of population. Basically, the dictionary questionnaire survey uses the same methods as any other form of market analysis: a set of standard questions are put to a number of informants regarding a given reference work(s) or dictionary-using habits²⁴. To conduct a successful and objective survey using questionnaires, several important conditions need to be observed:

- The questions must be relevant and unambiguous.
- Leading questions ought to be avoided. Thus, for instance, inquiring in the manner of "What information items do you miss in the dictionary – valency, examples, pictures, synonyms, etc.?" will only lead to the informant's ticking some of the choices offered rather than really thinking about his/her real dictionary needs.
- Hypothetical questions should be avoided. The informant should respond with relation to real dictionary use situations, not imaginary tasks. This can be achieved by giving the informant a text to translate and, subsequently, to fill in a questionnaire inquiring about the translation process using the dictionaries selected.

Obviously, the method of questionnaires is not without dangers. While the use of leading questions may influence the objectivity of answers, asking questions that are too open (e.g. "Which information do you miss in the dictionary?" without further specification) may, on the other hand, lead to very general answers which can virtually subsume anything. Therefore, further research is needed to produce questionnaires ensuring a maximum degree of objectivity.

Interview. The interview represents an alternative to the questionnaire, combining a checklist format with direct interaction with the informants. Through personal interchange, the informants' views on various aspects of dictionary use are elicited with relative efficiency. However, the approach is considerably more time-consuming than the questionnaire.

Protocol. This research technique, called "Wörterbuchsbenutzungsprotokol" by Wiegand and "Dictionary use record" by Nielsen, presents possibilities not afforded by the previous two methods. Verbal or written, it is an attempt to record the thoughts and opinions of an informant as he/she is dealing with a particular dictionary use situation. The advantage is that there is no delay in time, the user commenting on his/her preferences and problems at the time of completing the assigned task. The objective of the technique does not so much consist in criticizing the dictionary as in eliciting user behaviour in various dictionary use situations.

²⁴For examples of surveys, see [Bergenholtz and Tarp 1994, 78] and [Nielsen 1994, 15].

Naturally, even this method is not without some problematic aspects. For instance, users are often only given one dictionary, while in a real-life situation, they would have several at their disposal. It may also be difficult to obtain enough subjects interested in fulfilling such a time-consuming assignment. Finally, interpreting the data correctly is a far more challenging task than is the case in the pre-defined questionnaires. On the other hand, the freedom that the user has in recording his/her own thoughts can lead to the emergence of information that may never occur to the researcher. Therefore, the protocol is regarded as a more reliable technique than the questionnaire. For illustration, a protocol used by the Aarhus school is shown in Table 3.10.

Translation problem		Aids (including oral assistance)		Further comments	Solved in <i>x</i> min.
Description of problem	Information derived	code			

Table 3.10: Example of a protocol used for user research by the Aarhus School [Bergenholtz and Tarp 1 1994, 81].

Experiment. According to [Hartmann 2003, 436], an experiment is a scientific procedure consisting in the observation of a subject under laboratory conditions while keeping a number of factors under control. This method has not been paid as much attention in dictionary research as questionnaires or protocols; however, where experiments have been carried out, the results brought interesting new insights into dictionary user behaviour. One of the first experiments, reported on by Hartmann [ibid.], involved a group of Japanese students of English who were asked to translate a text containing a number of nonsense words by means of a specially designed mini-dictionary. The results confirmed a long-held belief that in long entries, users will generally choose the first or, at most, the second meaning, without going any deeper into the entry.

Test. Also called a “quiz”, a test is a procedure similar to a questionnaire of the protocol. It consists of different placement assignments aimed at eliciting various user strategies. More detailed information on the technique of the test can be found in [Bergenholtz and Tarp 1 1994, 83].

Judging from the striking lack of sources available, the method of dictionary user research is still far from developed in the Czech Republic. This is due to the fact that the user-oriented approach as pioneered by the Aarhus School is still a relative novelty in the milieu of Czech LSP lexicography, with many dictionary authors still holding rather conservative opinions on dictionary design.

To gain a view of the needs of Czech users consulting specialized dictionaries, a mini-survey was conducted in the early stages of the writing of the present thesis. Although very basic and, admittedly, lagging behind the requirements of the above-mentioned authors, it has nevertheless yielded preliminary results as to the use of LSP dictionaries by Czech students of English. The survey involved 26 students of a Bachelor’s programme in English for special purposes at the University of West Bohemia, Plzeň. They were asked to translate two short technical texts by

means of a much-used bi-directional dictionary – BAŽANT from our sample. The dictionary claims to be intended for translators as well as technology experts, so the students fell within the intended user group. The selection of the survey material was motivated by our involvement in teaching English for Mechanical Engineering, where the texts as well as the dictionary were used.

Half of the students were given an English text and asked to translate it into Czech using the dictionary. Having done that, they were asked to fill in a small questionnaire (for the full version see Appendix C). The principal questions were as follows:

1. Which words from the text did you have to look up in the dictionary?
2. Were there any words which you had to double-check in another dictionary to produce a correct translation?
3. Was there any information missing in any of the articles (grammar, prepositions, collocations) that you would have found useful? Give concrete examples.
4. What were some of the problems you encountered during your translation? Can you think of any ways in which the dictionary might be improved to make translating easier?

Despite some imperfections of the questionnaire (the presence of one leading question and the use of one dictionary only, although there was an opportunity to double-check with a LGP dictionary)²⁵, the survey did produce results. These showed a number of problems which the students had not been able to resolve using the dictionary. For instance, they were forced to double-check some expressions in a general language dictionary (with mixed luck), as the technical dictionary failed to give them unambiguous meanings. The greatest challenge of the text provided turned out to be the sentence, “Weakened by corrosion, the bolt sheared after take-off, causing one engine to break loose” [Glendinning 1996, 123]. The word *bolt* did not represent a great problem, although some students were confused by the undifferentiated equivalents given [Bažant et al. 1 1992, 104]:

1 svorník, šroub (s maticí); čep 2 západka, zástrčka 3 tex. stůčka

and stated they had had to guess using common sense or look in another dictionary. However, it was the phrase *the bolt sheared* that proved really difficult, and no student gave a correct translation. The equivalents for *shear* were given as follows [Bažant et al. 1 1992, 805]:

shear stříh, smyk; stříhání; stříhati, ustříhnouti, odstříhnouti; zásek; zátinka *horn*.

Naturally, the correct translation was “došlo k přestřížení šroubu” or “šroub se přestříhl”, but this collocation was not indicated anywhere in the dictionary. Quite unfortunately so, because – as was confirmed to us by an expert in engineering – in mechanics it is a very frequent one. The very same expert had no difficulty translating the whole phrase. This clearly demonstrates that the dictionary is actually aimed at a single user group – experts. Laypeople and, perhaps, also some semi-experts will have difficulty in arriving at the correct translation. Examples of this semi-expert/layman-unfriendliness can be found throughout the dictionary, and also in the other sample dictionaries not tested by the survey.

Additional problems appeared in the other part of the test, where students were asked to translate a short technical text from Czech into English using the Czech-English direction of the same dictionary. Here, the greatest weakness of the dictionary was revealed, i.e. a lack of awareness of the dictionary purpose as discussed in the final summary to the analysis. In other words, the dictionary authors have failed to realize the different user needs in active and passive dictionaries and

²⁵The leading question was selected so as to avoid statements that are too general or vague. While some students only reiterated one or more of the possibilities offered, others used their own ideas for the improvement of the dictionary.

made the two directions of the dictionary virtually identical. Consequently, most of the students surveyed did not consider the provided technical dictionary sufficiently helpful in guiding them to the correct translation. When asked what kind of additional information they missed most in the dictionary, they stated their priorities as follows:

- prepositions with verbs (38% of students)
- collocations (27% of students)
- examples of the headwords in use (26 % of students)

Three additional priorities stated by the students included pronunciation, synonyms and the use of pictures. The results of this very simple survey are by no means surprising - they only reflect the logical problems a user encounters when working with a dictionary containing only two bare word lists. More unexpected, however, was the way the students answered a more general question at the beginning of the questionnaire: "On what occasion do you use bilingual terminological dictionaries?" The possible answers were as follows:

- most often when I receive a foreign-language specialized text or translate it into Czech
- most often when I translate a specialized text from Czech into a foreign language
- most often when I want to write a text (a seminar paper, a summary etc.) in a foreign language
- I do not use such dictionaries

The first question represents reception of a foreign language, the following two are equivalent to production in/translation into a foreign language. When the results appeared, they revealed that the students use terminological dictionaries for production purposes nearly as often as for reception purposes (39% and 42% respectively). The remaining students stated they do not use terminological dictionaries. Admittedly, the experiment involved a small group of students and the results can only be regarded as preliminary, but it can be assumed that the high percentage of "active users" indicated indeed testifies to the importance of the production puprose in a dictionary. It is rather unfortunate that this – undoubtedly widespread – need is not taken into consideration by all dictionary producers.

It remains one of our future tasks to carry out dictionary use research (much improved in format) among various groups of Czech dictionary users and to suggest corresponding improvements to dictionaries in future publications.

3.5 Final evaluation of the sample

The present section provides an evaluative summary of the information gained from the dictionary sample, stating the overall character and quality of the dictionaries analyzed, assessing their shared features as well as differences and presenting a typology of their most notable shortcomings.

The dictionaries contained in the sample can roughly be divided into two groups – dictionaries of humanities and dictionaries of technology/natural sciences, which we shall call "technical dictionaries" for convenience' sake. The former comprises four main fields: law, business, education and arts. The latter covers a wide a variety of LSP areas such as engineering, communication technologies, ecology, biology, medicine or architecture. Although far more varied thematically, the dictionaries belonging to this group are similar enough in format to be considered as one large category. One dictionary that is difficult to include in any of the categories is HEŘMANSKÝ, a dictionary of sports.

As regards the differences between the two groups, they are of several kinds. Generally, the technical dictionaries tend to be more conservative in their macro-and microstructures. The lemmata are mostly ordered in a straight-alphabetical manner or a niche-alphabetical arrangement

that shows very few differences from the straight alphabet. Only two of the technical dictionaries use nesting as their arrangement. The dictionaries of humanities, on the other hand, make frequent use of more complex macrostructures – only one dictionary displays the straight-alphabetical ordering; all the other macrostructures are niched or nested.

Similarly, technical dictionaries show less willingness to include grammatical information than dictionaries of humanities. Most of them fail to state irregularities, let alone syntactic information or collocations. On the other hand, several state gender or word class quite unnecessarily, given the character of English and the fact that the dictionaries are intended for Czech users who do not need to learn the gender of their native language terms. Naturally, there are notable exceptions, such as *ŘÁDA*, a dictionary of aviation, which provides valency and collocations. Generally, it can be stated that the bare-term-bare-equivalent format seen in some of the technical dictionaries (see Appendix B) can only serve a passive function, and only to a limited extent at that. For successful production in the second language, a greater range of linguistic information is needed.

The dictionaries of humanities appear to be more open to the concept of a reference work that informs not only on terms but also on their use. The provision of valency and collocations is the rule rather than the exception. The only dictionary of humanities that fails to state either of these (*BALEKA*) provides logical, use-related reasons for not doing so in its preface.

While the dictionaries of humanities are more likely to include usage examples, the technical dictionaries appear more willing to provide lexical paradigmatic information. In general, they seem more concerned with terminological precision than the use of the terms in context. In addition, two of the technical dictionaries provide full-length definitions of terms, a practice not found in any of the dictionaries of humanities. Again, encyclopaedic information is regarded as more important than grammatical information.

However, the two categories also share some similarities. The first one is the almost universal preference for the alphabetical macrostructure (the pitfalls of the systematic one having been discussed earlier), namely the word-by-word arrangement. Although frequent in foreign dictionaries, the letter-by-letter arrangement has not taken root in Czech-English and English-Czech specialized dictionaries, probably due to the high occurrence of multi-word terms in the terminologies of both languages. The second shared feature is the device of explanatory notes, used in most of the sample dictionaries to indicate pragmatic or encyclopaedic information. While not taking too much space, explanatory notes are extremely efficient in their potential to specify and distinguish meaning.

The range of shortcomings that the sample dictionaries display can be summarized in a simple typology proposed below. The typology uses as its point of departure the concepts of **dictionary user** and **dictionary use** (or “function”). As explained in 2.3.9, there are three basic types of dictionary user: an expert (a person with training in the field), a semi-expert (a student of the field, a translator or an expert from the adjacent field) and non-expert (person with very limited or no experience in the given field). Similarly, there are two basic uses of a bilingual dictionary – passive use (for foreign text reception) and active use (for foreign text production). To these two, we can also add translation, which, again, can either have the form or reception (from L2 to L1) or production (from L1 to L2). In order to produce a good-quality dictionary, the lexicographer needs to be aware of both its intended function and the needs of the prospective user. In addition, he/she must possess the necessary lexicographic skills to produce a dictionary that lists all the relevant terms, states correct equivalents, provides sufficient meaning discrimination, gives the necessary amount of grammar and displays user-friendliness. The shortcomings generalized below arise when one or several of these requirements are disregarded.

Shortcoming Number One: Disregarding the dictionary use

Taking LSP dictionaries of English for Czech users as an example, it has already been implied that the active use of a bilingual dictionary roughly corresponds to the Czech-English direction, while the passive use represents the English-Czech direction²⁶. As the former represents going from the

²⁶Some specifications of this implication will be made in 4.3.

known into the unknown, the information needed by the user will be different from that required by the latter direction, where the user proceeds from the unknown into the known. For instance, the need for morphological (irregularities) and syntactic (valency, examples of headwords in use) information will be greater in production-oriented dictionaries. As regards pragmatic information, it is needed in both dictionary types.

Here, however, many of the dictionaries – although excellent from the point of view of terminology – are failing. Let us, for instance, consider the very simple phrase *přípevnit přístroj na stojan* which, for instance, a student of cartography may wish to translate in his/her seminar paper in English. The available Czech-English dictionary of cartography (ŠÍMA) gives us the following information [Šíma 1993, 124]:

přípevnit fasten, fix

Having obtained these two equivalents, we are left with a number of unanswered questions. Firstly, are the equivalent absolutely interchangeable, i.e. is there total synonymy between them? The dictionary does not inform us on that. Secondly, what kind of preposition do we use the verbs with? Do we say *fasten/fix* “to”, “on”, “onto”, “into”, etc? And, moreover, is the preposition the same for each of the equivalents? Adding at least the preposition, if not a collocation or an example in use, would not burden the dictionary too much, and the user could avoid having to look the valency up in a general dictionary.

Similar examples of the disregard of the dictionary use abound in the sample. The result is a dictionary consisting of a bare list of terms followed by an equally bare list of equivalents. Let us examine four entries from a dictionary of forestry [Horák 1999]:

důchod (penze) pension
kopat dig
nakažený infested
potomek offspring

The dictionary, otherwise good as regards terminology, is devoid of any grammar information which would enable the user to produce a correct text in English – information such as collocations (*být v penzi, pobírat penzi*), prepositions (*nakažený čím*), or irregularities (*kopal, potomci*). Providing such information would considerably enhance the user-friendliness of the dictionary.

Although L2 reception is generally regarded as easier than L2 production, even here problems can arise. Let us consider an authentic extract from a LSP text dealing with electrical engineering, in this case an instruction manual of a VHF Air Band Transceiver IC-A11EURO:

▷ Push [DIAL] to toggle the backlight control; OFF, LOW or HIGH are available.

When translating this instruction into Czech, the two terms requiring lookup would undoubtedly be “backlight control” and “toggle”. Whereas the compound “backlight control” is lemmatized by our sample dictionary of electronics (MALINOVÁ) as “osvětlení pozadí”, the verb “toggle” represents a considerable challenge. The very same dictionary offers the following information [Malinová et al. 1993, 124]:

toggle klopný obvod
~ **flip-flop** klopný obvod
~ **frequency** překlápěcí kmitočet
~ **rate** překlápěcí rychlost
~ **switch** páčkový vypínač, páčkový spínač, páčkový prepínač
toggleing překlápění, prepínání

Although the manual contains many occurrences of the verb “toggle”, suggesting that it is a frequent one in electronics, the dictionary does not even lemmatize it (confirming the tendency of technical dictionaries to avoid lemmatizing verbs), and the user has to guess from the entry “toggling”. A frequency-based approach to lemma selection would solve the problem easily.

To conclude, the disregard of the dictionary use manifests itself in the reluctance to include more grammatical information in active dictionaries and, furthermore, in the failure to lemmatize *all* the high-frequency LSP terms in passive dictionaries. In addition, disregard for the active and passive function alike can also have the form of insufficient pragmatic information in either dictionary type.

Shortcoming Number Two: Disregarding the dictionary user

When compiling a dictionary, the lexicographer should keep in mind what user type (experts, semi-experts, non-experts) the dictionary is designed for, and plan the dictionary structures accordingly. In addition, the intended user type should be mentioned in the preface. It is only logical that non-experts and semi-experts will require more information (collocations, explanatory notes, labels etc.) from the dictionary than experts who know the field well. Sadly, a considerable number of the sample dictionaries do not appear to acknowledge the different user needs, and their contents do not correspond with the target group postulated in the foreword.

As an example, let us recall a part of our brief user survey described in 3.4. Here, the sample technical dictionary (BAŽANT) failed to provide the collocation *the bolt sheared*, which prevented most of the subjects from giving the correct translation. The shortcoming does not simply consist in excluding collocations but also in stating in the preface that the dictionary is intended for students, translators, interpreters, etc, i.e. semi-experts, a group that requires more extensive information than experts. Naturally, the dictionary represents a remarkable terminological feat and cannot be criticized as a whole. It can simply be argued that despite its undoubtable strengths, the dictionary's weakness consists in the fact that not all the lemmata were planned with the intended user group in mind.

A similar example of the disregard for the dictionary user can be found in HEŘMANSKÝ, a dictionary of sports, where grammatical properties of lemmata are indicated in a way that may leave the user puzzled, e.g. transitivity is described by means of labels *s. př.* and *s. nepř.*, which, without corresponding exemplification, will be of no value to the non-linguist users (see 2.2).

To summarize, the disregard of the dictionary user manifests itself, above all, in the failure to provide collocations, explanatory notes and other disambiguating devices which enable even semi-experts and non-experts (provided they are included in the intended user group) to confidently receive and produce LSP texts using the dictionary in question. In addition, it also has the form of the presentation of linguistic information in a way that is insensitive to the real knowledge of users, whose linguistic competence will always be lower than that of the lexicographer.

Shortcoming Number Three: Lack of general lexicographic expertise

In addition to the previous two omissions, some of the sample dictionaries display a third shortcoming which could be called a “lack of general lexicographic expertise”, i.e. of the necessary dictionary-making skills and sufficient mastery of the English language. As suggested in 3.2, people who prepare specialized dictionaries are most often experts in their field with a relatively good knowledge of English, but they are rarely lexicographers. As a result, the dictionaries show some idiosyncrasies which could be avoided by having a linguist on the team of authors.

To illustrate the argument, let us consider two examples. The first has been taken from a Czech-English and English-Czech dictionary of motoring (MACHAČKA), which attempts to be helpful by providing some conversational phrases to be used on British and American roads. Sadly, the introduction to the dictionary does not state where the phrases were excerpted from, but some of them are obsolete and very unlikely to be used in real-life situations:

I should like to go to Liverpool. [Machačka 1998, 10]

May one park here? [Machačka 1998, 23]

Obviously, if there were a linguist on the team, he/she would identify these phrases as obsolete and replace them with some up-to-date ones, for instance *I'd like to go to Liverpool* or *Can I park here?* The second example comes from RULÍK, a dictionary of hydrobiology. Here, the authors intend to help users by including some grammar irregularities. However, the information provided is sometimes confusing if not incorrect. Consider the following entry [Rulík, Husák, Květ 1996, 9]:

algae (pl. alga)	řasy
attached algae	přisedlé řasy, nárostové řasy
benthic algae	bentické řasy

An average user, accustomed to the standard form of dictionaries, would undoubtedly read the above-stated information in the following way: *algae* is the singular form, *alga* (labelled “pl”) is the plural. The equivalents, however, suggest that the opposite is true: *algae* is the plural. An advanced user of English, naturally, knows that the lemma is in fact plural, the term in brackets singular. Most of the users, however, would be puzzled. Whatever the reason for this incorrect information (lack of grammar knowledge, unsuitable way of labelling irregularities or simply an unintentional error), the result is providing the user with wrong or confusing information.

Among other examples of lexicographic omission is the inconsistent use of typographical devices, such as the illogical presentation of inner access structure in the following entry [Straková, Bürger, Hrdý 1 2000, 36]:

legal	právní; zákonný, legální; soudní
take legal advice	nechat si právně poradit
~ act	právní úkon
make a legal act	provést právní úkon

Here, it is rather difficult to understand why the authors have decided to replace the head term with the tilde in the subentries yet keep it in full in the collocations provided. As there appears to be no logical explanation, the reason must be put down to negligence.

Other cases of lexicographer's neglect are related to the insufficient treatment of equivalence. In the very same dictionary, there are numerous entries where an equivalent appears in the sublemmata that is not stated with the head lemma, such as the noun *maintenance* in the following entry [Straková, Bürger, Hrdý 2 2000, 544]:

udržení	<i>n</i> retention, maintaining, reservation, conservation
~ jakosti	maintaining of quality
~ práv	maintenance of rights
~ si zaměstnání	job retention

Similarly, one entry below, the verbal entry term **udržet** is provided with the equivalents *maintain*, *keep* and *retain*, yet in the collocation *udržovat rychlý růst* we find the equivalent *sustain rapid growth*. In such an instance, the verb “sustain” should be included among the equivalents of the head term. Unfortunately, inconsistencies of this kind are rather frequent across the sample.

To summarize, the third type of dictionary shortcoming comprises various grammatical, typographical or semantic omissions, intentional or not, which prevent users from obtaining the correct information from the dictionary. Some of these omissions are only of minor importance, while others (especially the negligent presentation of equivalence) represent quite serious shortcomings considerably reducing the value of the dictionary.

To make a final comment on the overall quality of the dictionaries, we can state that the sam-

ple contains a number of user-friendly and innovative dictionaries as well as several less successful ones whose helpfulness is seriously limited due to their lack of linguistic as well as encyclopaedic information or lack of lexicographic expertise. Some of the recently published dictionaries show an awareness of the latest trends in dictionary research, displaying features such as valency, collocations, usage examples, and explanatory notes/definitions. As can be seen in, for instance, ŘÁDA, MINIHOFEK or HÁJKOVÁ, innovation is possible in technical dictionaries as well as in dictionaries of humanities, provided the authors are well-informed about true user needs.

To avoid making statements that are too general, a table has been compiled where the individual features of all the sample dictionaries are stated and an overall evaluation of each of the dictionaries is provided. The categories of information shown include grammatical (number, irregularities, valency), lexical syntagmatic (collocations), lexical paradigmatic (synonyms), and encyclopaedic (explanatory notes, definitions) information. By “lexical paradigmatic information” we understand an explicit statement of a synonym of the lemma, not only listing several synonymous equivalents. The overall quality of the dictionaries is indicated as follows:

***** **excellent** – highly user-friendly, providing quality grammar information as well as meaning discrimination, the contents 100% correspond with the dictionary purpose.

**** **good** – reasonably user-friendly, providing a sufficient amount of grammar information and meaning discrimination, the contents largely correspond with the dictionary purpose.

*** **average** – good from the point of view of terminology, but reduced user-friendliness; limited grammar information, some discrepancy between the contents and dictionary purpose.

** **below-average** – providing the necessary terminology but not user-friendly, encourages passive use only, basic microstructure, insufficient meaning discrimination.

* **poor** – consisting of bare lists of terms and equivalents only, unsuitable for both reception and production due to lack of grammar, encyclopaedic and pragmatic information; lexicographic flaws; resembles a bilingual glossary rather than a dictionary.

The “correspondence between the contents and dictionary purpose” refers to the degree to which the microstructure reflects the aim of the dictionary postulated in the outside matter; a dictionary designed for production requires such information as morphological irregularities, valency, collocations, etc., while a dictionary intended for reception demands, above all, careful meaning discrimination in the L1 equivalents provided, and, to some extent, collocations as well. Providing redundant information (e.g. gender with every lemma) amounts to disregarding the dictionary purpose as well, as most (if not all) of the dictionaries in the sample are intended for Czech speakers of English, not vice versa.

Whether a dictionary in question has been evaluated as “excellent”, “average” or “poor” does not only depend on how many times “yes” appears in the individual columns of the table. The final evaluation takes a whole range of factors into consideration, including the ease of access, economy and efficiency of article arrangement, successful handling of equivalence problems, the quality of the front and back matter, etc.

Dict.	Grammar	Colloc.	Paradig.	Encycl.	Overall rating
COLLIN	yes	yes	yes	yes	*****
KALINA	yes	yes	no	yes	****
PRŮCHA	no	yes	yes	yes	****
CHROMÁ	yes	yes	no	yes	****
HÁJKOVÁ	yes	no	yes	yes	****
ŘÁDA	yes	yes	no	yes	****
MINIHOFER	yes	no	yes	yes	****
STRAKOVÁ 1+2	yes	yes	no	yes	***
MERTA	no	yes	no	yes	***
HANÁK 1+2	yes	yes	no	yes	***
BAŽANT 1+2	no	no	no	yes	***
HEŘMANSKÝ	yes	yes	no	yes	***
HORÁK	no	no	no	yes	***
MALINOVÁ	yes	yes	no	yes	***
BALEKA	no	no	no	yes	***
ŠÍMA	yes	yes	no	yes	**
RULÍK	yes	yes	no	yes	**
MACHAČKA	no	yes	no	no	**
MURRAY	no	yes	no	yes	**
TOPILOVÁ	no	yes	no	yes	**
VLK	no	no	no	no	*
VEDRAL	no	no	no	no	*

Table 3.11: Final evaluation of the sample dictionaries, indicating the presence of grammatical, lexical syntagmatic, lexical paradigmatic and encyclopaedic information as well as the overall rating of the individual dictionaries.

Chapter 4

The methodology for the production of Czech bilingual specialized dictionaries

One of the principal advances in lexicography in recent years has been the focus on the user perspective, that is the realisation that different users have different reasons for using the dictionary, and that the dictionary can, and should, respond to these.

– R.R.K. Hartmann

The present chapter provides a set of recommendations dealing with the preparation of Czech bilingual specialized dictionaries. The methodology is based on three principal sources:

1. The analysis of 25 sample Czech bilingual dictionaries described in Chapter 3.
2. The latest research into the user-oriented approach to LSP lexicography as outlined in Chapter 2.
3. The basic principles of pedagogical lexicography as presented in the leading ESL dictionaries (*OALD*, *LDOCE*, *MED*, *COBUILD*, etc.).

The guidelines presented aim at being descriptive rather than prescriptive, taking into account the multiple factors involved in each individual lexicographical project. Consequently, three possible models of the bilingual specialized dictionary have been developed to suit the needs of compilers involved in a variety of dictionary-making situations (discussed in 4.9).

4.1 Background to the methodology

The methodology proposed in the thesis is by no means the first to be put forward to prospective dictionary authors. Lexicographers such as Wiegand, Bergenholtz and Tarp, Nielsen, Opitz, Schaefer and others have attempted to lay down the guidelines for the production of specialized dictionaries. However, their recommendations have been addressed to a general dictionary-making forum, not to authors with a particular language in mind. Our methodology is concerned with Czech bilingual specialized dictionaries, namely Czech-English and English-Czech dictionaries (with possible application to other languages in combination with Czech). The guidelines presented take the specific needs of Czech users and the Czech dictionary market into consideration, aiming at practical suggestions, not unrealistic demands. The ultimate objective is to

combine the theoretically desirable with the viable, producing a set of instructions on how to create a dictionary that is user-friendly yet marketable in the Czech environment.

As mentioned in the preface, the guidelines leave out technical details of data collection and processing, as including those would add a large number of pages to the dissertation, and providing less than that would amount to superficiality (more information on this topic can be found, among others, in [van Sterkenburg 2003]). The methodology discusses, above all, the ways of presenting the collected material with respect to the intended dictionary users. In its first part, general guidelines for the design and planning of the Czech bilingual LSP dictionary are presented. In the second part, three dictionary models of varied complexity (the unreduced, the reduced and the minimal dictionary) are introduced and their individual descriptions provided, complete with exemplification.

4.2 Preliminary considerations

Before any work on the dictionary is commenced, several crucial decisions have to be made regarding the basic character and complexity of the dictionary. Without paying due attention to these, the dictionary would represent but a half-baked product offering insufficient or, conversely, redundant information. The decisions in question are as follows:

LSP field(s) covered. Determining the field(s) the dictionary is going to cover is without any doubt the first decision the lexicographer has to make. There are three basic options available:

- multi-field dictionary
- single-field dictionary
- subfield dictionary

Each type possesses its inherent strengths and weaknesses. The strength of the multi-field dictionary (i.e. dictionary treating two or more fields) consists in its higher marketability. An economy-conscious Czech user may give preference to a multi-field dictionary due to the fact that it comprises several subjects in a convenient single volume at the price of a single book. Having to buy several dictionaries (dealing with business, law and accounting, for instance) can be considered costly by some users. On the other hand, the apparent advantage of the multi-field dictionary may prove illusionary, as the number of terms from individual fields as well as the amount of grammatical information will inevitably have to be restricted, and the user, unable to find the terms needed, will have to consult a more detailed single-field dictionary anyway.

Considering the above-stated arguments, it appears that a single-field dictionary is the optimal solution, enabling a more detailed treatment of the LSP terminology as well as the accompanying grammatical information. For the very same reason, single-field – and even sub-field – dictionaries are proclaimed by lexicographic theoreticians, for instance [Bergenholtz and Tarp 1 1994, 60], as very much preferable to multi-field dictionaries. While no objection can be made to this claim, it is true, on the other hand, that single-field dictionaries of certain fields are still difficult to imagine on the small Czech dictionary market. While areas such as law, medicine or computer science are attractive enough to produce single-field dictionaries, other subjects (e.g. various branches of heavy industry, individual arts and crafts or some social sciences) would hardly attract enough buyers. Admittedly, dictionaries of these minority fields do exist. Mostly, however, they have the form of glossaries containing nothing but bare lemmata and equally bare equivalents (e.g. VEDRAL in our sample). The same can be claimed of sub-field dictionaries.

As mentioned earlier, multi-field dictionaries run the risk of not only covering the individual fields superficially, but also of lacking space to provide the necessary grammar and

encyclopaedic information. Should a lexicographer, therefore, decide for the multi-field approach, the number of fields covered should be as low as possible to treat the articles not only from the terminological, but also linguistic point of view. The fact that such a compromise is possible is demonstrated by KALINA, a dictionary of business, law and finance, which contains one of the richest microstructures in the whole sample in terms of valency, collocations and usage examples.

Where the market situation is favourable enough, however, single-field dictionaries should be given preference due to the in-depth treatment of terms they make possible.

Dictionary size. The term “dictionary size” essentially refers to the number of lemmata in the dictionary word list. Two main categories based on the lemma count are distinguished:

- maximizing dictionary
- minimizing dictionary

While the former contains as much of the existing terminology of the given field as possible, the latter is selective, listing high-frequency terms. To draw a dividing line between the two types is difficult as sizes of individual terminologies vary greatly. However, the lemma count usually stated is 30,000 [Nielsen 1994, 38]. Accordingly, a dictionary containing more than 30,000 lemmata is described as maximizing and vice versa, allowing for some variation across fields. In the instance of smaller languages (such as Czech) this number can be lower, as multi-volume LSP dictionaries boasting tens of thousands of lemmata are unlikely.

The maximizing/minimizing distinction has two practical implications for the lexicographer. First, if the minimizing approach is adopted, great care should be taken to carry out lemma selection on the basis of frequency. The failure to do so is apparent in technical dictionaries, which tend to avoid lemmatizing high-frequency verbs, providing only nouns, from which the meaning of the verbs may not always be safely derived. Secondly, it should be clearly stated in the dictionary preface and/or the informative label whether the terminology presented is exhaustive or selective only. This is for the prospective user’s information (see below).

Dictionary function. Determining the function of the prospective dictionary has a great impact on the character and amount of information presented in the microstructure. The individual dictionary functions have been discussed in detail in 2.3.9. Accepting that a single-function dictionary is unlikely to be produced for such a small language as Czech, we can largely disregard the separate function of “translation”, as it will always be subsumed under one of the two main functions. It is, for example, unrealistic to expect that a dictionary would be designed only for reading English texts and not for translating them. Therefore, the functions of a bilingual LSP dictionary can be narrowed down to the following two:

- **Decoding function** Involves receiving and translating second-language texts.
- **Encoding function** Involves writing second-language texts or translating first-language texts into the second language.

The analysis of the sample has revealed that an absolute majority of the bilingual specialized dictionaries published in the Czech Republic are intended for Czech users seeking assistance with English, not for foreign speakers needing help with Czech (although a very small minority of such users may also arise). Logically, the above-mentioned passive function should correspond with the English-Czech direction, while the active function should equal to the Czech-English direction. While this is essentially true, especially as far as the Czech-English direction is concerned, an additional suggestion could be made that English-Czech dictionaries, despite their “reception” status, can also aid production. This is because they often contain information which may not serve the purposes of the immediate lookup, but it is there to inform the user of the linguistic properties of the lemma. Provided this information

is noted and remembered by the user, it can be later utilized for the purposes of production. An example of such information is valency in English-Czech dictionaries [Merta and Mertová 1994, 11]:

allot přidělit, přikázat, určit (pro – to/for)

The awareness of the function of the planned dictionary will help the lexicographer include information which Czech users require when receiving and producing L2 texts. At the same time, it will enable the rejection of any information that the Czech user does not need, as he/she already possesses the knowledge as a native speaker of Czech. As the decoding direction involves going from the unknown into the known, while the encoding one proceeds from the known into the unknown, the two directions should not look the same. The specific requirements for receiving and producing English specialized texts – i.e. the emphasis on meaning discrimination in the passive dictionary and on usage in the active dictionary – must be carefully considered by the dictionary author, as will be practically demonstrated further in the guidelines.

Intended user. Another key factor in the planning process is the type of user the dictionary aims at. No work should be done on the dictionary without having obtained a clear idea of the user profile. Basically, a user type can be determined by two criteria:

- **According to field competence.** Three basic user types are recognized: experts, semi-experts and non-experts.
- **According to language competence.** The users may display a high, intermediate or low level of the foreign language in question. They may also show various degrees of experience of working with dictionaries; advanced users can be expected to be familiar with the format of high-quality foreign ESL dictionaries, while users with only basic L2 skills may have encountered little more than the simple glossary-like dictionaries of Czech origin.

Both of these criteria will have an impact on the amount of both linguistic and encyclopaedic information in the dictionary. Logically, the lower either of the competence types, the more information the user will require. For instance, semi-experts or non-experts will need far more encyclopaedic information and collocations, while users with a poorer knowledge of English will require morphological irregularities, information on valency and, very probably, pronunciation.

Given the role of English in today's business, communication technologies, science and social sphere in general, and given the increasing co-operation among people working in various fields, it cannot be considered a particularly fortunate decision to produce dictionaries aimed at experts only. Such a dictionary will inevitably have a very limited scope of target users, and any semi- or non-expert in need of the dictionary will be let down by the insufficient amount of encyclopaedic and linguistic information. Producing a dictionary for users of several levels of competence, both professional and linguistic, appears a preferable solution that can also have a favourable marketing impact, especially if the user-friendliness is well-advertised in the informative label or elsewhere.

Naturally, widely popular fields such as business, law, communication technology, etc. are more likely to be aimed at a broader section of users than dictionaries of some strictly technical fields. However, those "minority dictionaries", too, can make some allowances for less expert users by providing at least a minimum of linguistic and encyclopaedic information, even if it means having to appoint a trained linguist as an advisor.

Author's background As the analysis of the sample dictionaries revealed, every dictionary closely reflects the experience and expertise of its compiler. The competence may relate

to linguistics and/or the specialized field in question, roughly yielding the following combinations:

- field expert – non-linguist – practical knowledge of the target language
- field expert – linguist – knowledge of the target language
- non-expert – linguist – knowledge of the target language
- non-expert – translator/interpreter – knowledge of the target language
- non-expert – non-linguist – practical knowledge of the target language

It is extremely rare to find a single author who would comprise top-level linguistic background with a high degree of terminological expertise; more frequently, the compiler is either a field expert with practical knowledge of L2 or a linguist/translator with a limited encyclopaedic knowledge of the given LSP area. For the former, the challenge of the lexicographic work will consist in being able to deliver correct and sufficient linguistic information; for the latter, it will be the selection of the relevant lemmata and the choice of the appropriate equivalents. Where the expert-cum-linguist author is not available, teamwork appears to be an ideal solution to ensure both terminological and linguistic correctness of the information presented. If team co-operation is not achievable due to practical limitations, at least some degree of consulting with a linguist/field expert is advised.

External limitations of the project As suggested earlier, the market for Czech bilingual specialized dictionaries is very small. Therefore, Czech dictionary compilers can be expected to work under greater time/size/technical constraints than their foreign counterparts preparing dictionaries of larger languages. An intention to prepare a multi-purpose dictionary comprising a wide variety of linguistic and encyclopaedic information may, for instance, come into conflict with the publisher's refusal to exceed certain publishing costs or allow more time for the dictionary's preparation. A great deal of compromising can be expected in most dictionary projects, having an impact on the final design of dictionaries.

The proposed methodology is aware of the limitations the future dictionary authors may have to face; hence its descriptive character and multiple solutions offered.

4.3 Lexicographic selection

Following the basic decision on the dictionary size, function and user profile, the next step in the process of dictionary preparation is the so-called "lexicographic selection". The term refers to a number of interrelated procedures leading towards the compilation of a list of lemmata and their accompanying equivalents. Drawing on [Nielsen 1994, 129], the following stages of lexicographic selection can be recognized:

- method selection
- field selection
- corpus selection
- lemma selection
- equivalent selection

Each of these stages will be briefly explained below.

Method selection. Before the lemma stock for the dictionary can be selected, a method of its collection must be decided upon. A solution often presented as optimal (e.g. by the Aarhus authors) is selection based on the frequency of terms contained in an electronic

corpus compiled for the purposes of the dictionary project. However, not all lexicographers will have such a corpus, together with the necessary software, at their disposal. Therefore, the source material will often contain not only electronic documents, but, as in the case of our model dictionary, a bulk of printed material (e.g. journals, monographs, written reports, etc.) from which excerption will have to be made. Here, the dictionary compiler's knowledge of the LSP field in question will play an important role in the selection of the appropriate terms.

When compiling an English-Czech/Czech-English dictionary, it will always be easier to obtain English rather than Czech electronic LSP material due to the wealth of English Internet sites dealing with various fields of human activity. Possessing even a partially electronic corpus will be of benefit to any LSP dictionary project, as it will enable the use of a concordancer to obtain collocations, usage examples and frequency counts.

Apart from the primary sources, whether printed or electronic, the existing secondary sources, especially older dictionaries, can also be drawn on to provide part of the lemma stock. Therefore, rather than a single method (a frequency-driven approach based on a completely electronic corpus, as promoted by the Aarhus authors), a combination of methods can be expected in a Czech LSP dictionary project, requiring both encyclopaedic and linguistic experience of the author(s).

Field selection This procedure consists in selecting the actual subject (theme) of the dictionary. If the project is aimed at a single-field dictionary, the lexicographer will have to consider which subfields of the given field are to be covered, as texts dealing with these will have to be included in the corpus. Thus, for instance, a sample dictionary of civil engineering (HANÁK), includes the vocabulary from subfields such as architecture, urbanism, building technologies, economics of building, geodetics, mechanics, computer design, technical equipment of buildings and others. In the case of a multi-field dictionary, the process is two-fold: first, the individual fields must be determined and then each of them must be broken down into subfields.

The process of breaking fields down into subfields enables the lexicographer to obtain an in-depth grasp of the whole terminology, resulting in a balanced representation of the individual subfields in the dictionary. This is in accordance with a statement made by Zgusta: "A good policy is to prepare preliminary inventories of technical terms from the single sciences" [Zgusta 1971, 245].

Corpus selection Whether electronic or printed, the corpus from which the lemma stock will be selected needs to be built on certain pre-established principles. The corpus should only contain texts directly related to the dictionary subject; texts covering *all* the subfields determined should be included. Since we are dealing with a bilingual dictionary, it will be necessary to compile two parallel corpora as sources of terms and collocations for lemmata and equivalents. The two corpora should be built according to the same principles and should deal with the same subjects.

Naturally, a preferable situation arises when translations of foreign language texts are available, making the lemma-equivalent match easier. However, as in the case of our model dictionary, when translations are not available, the two corpora will comprise texts of different origin, requiring an extra amount of LSP experience on the part of the author to identify the correct equivalents. Nevertheless, even in the instance of the non-availability of translated material, the building of two parallel corpora is worth undertaking, due to the opportunity of the selection of collocations afforded thereby.

Like other aspects of dictionary preparation, a corpus can (and should) be built with respect to the user-oriented approach favoured by the present thesis. Such a "user-friendly" corpus will simply contain texts targeted at the intended user types. Thus, for instance, if the planned dictionary is intended for semi-experts as well as experts, texts should be included that explain the LSP subject matter to semi-experts; textbooks written for university

students, semi-experts *par excellence*, being just one example. Naturally, materials aimed at experts (articles from LSP journals, monographs, manuals, contracts and other sources depending on the given LSP field) must also be included. If the dictionary is also targeted at the interested general public (such as ŘÁDA, a sample dictionary of aviation), the options are wide; in this particular dictionary, the author has – quite correctly so – used fiction dealing with aviation as one of the sources for his corpus.

Lemma selection The corpus having been compiled, the time-consuming process of selecting individual lemmata is the next immediate task. Obviously, the narrower the scope of the dictionary, the more complete the lemma selection will be. The analysis of the sample dictionary has revealed a strong tendency (especially marked in technical dictionaries) to lemmatize nouns at the expense (or sometimes to an almost complete exclusion) of other word classes. Although the predominance of nouns in terminologies cannot be denied, it is advisable to include other word classes as well, especially verbs and adjectives. This inclusion is particularly important where the meaning of these verbal or adjectival terms cannot safely be derived from that of the noun. In addition, the lemma selection can also be extended to adverbs, prepositions (especially complex prepositions in dictionaries of law, business and other humanities) and prefixes as well as suffixes.

Importantly, lemma selection must not be restricted to single terms only. The lemmata selected should also include compound noun terms, multi-word verbs (e.g. phrasal or prepositional verbs) and, finally, collocations (especially adjective+noun, verb+noun and noun+verb combinations). As stated in [Bergenholtz and Tarp 1 1994, 118], there are two approaches to the selection of collocations: a semantically-based approach, involving the meaning of a collocation, and a frequency-based approach, taking into consideration the frequency of co-occurrence of certain words in the corpus. Each of these approaches has its strengths and weaknesses, but the frequency-based approach to collocation selection is better suited to the computer-aided corpus work.

However, what needs to be obtained from the corpus are *statistically significant collocations*, not merely the most frequent co-occurrences, as these are very likely to be trivial. Therefore, special software may be needed to be able to obtain the relevant collocations. Where such software is missing, dictionary authors may simply have to apply their linguistic intuition as well as their knowledge of the given LSP field in deciding which collocations to include. Special attention should be paid to “intransparent” collocations that may pose a translation problem for the potential user (such as *the bolt sheared* found in our user research experiment, see 3.4).

An important problem is the inclusion of LGP terms in the lemma stock of the planned dictionary. Obviously, the term “specialized dictionary” suggests that we are dealing with a reference work covering specialized language only, and it is only logical that LGP items that are too universal, such as the verbs *to be*, *to have*, etc., should be excluded from the word list to save space for some more specialized terms. On the other hand, it appears recommendable to include such LGP items that have a meaning different from their general meaning in the given LSP area (e.g. the word *list* in library science, see 3.3.6), or LGP items that collocate with the LSP terms found in the corpus (e.g. words such as *approve*, *agree*, etc. in business English).

A final comment, perhaps unnecessary as the authors of Czech LSP dictionaries do not seem to have any problems in this area, concerns the appropriate unit for lemmatization. As emphasized by [Fuentes and Velasco 2001, 40], this unit should always be a lexeme, never an inflectional form or derivative. The authors of the article show an example of a straight-alphabetical dictionary where a sequence of independent lemmata consists of the forms *hammer*, *hammered* and *hammering*, or later on in the dictionary, *handicraft* and *handicrafts*. To lemmatize other forms than lexemes, in their opinion, is to show an ignorance of the principles of morphology. While essentially agreeing with their observation, we can only add that the lemmatization of an inflectional form appears permissible in some rare

circumstances when this form has a special meaning of its own (e.g. some plural terms in biology, etc.).

Equivalent selection According to [Zgusta 1971, 218], there are two possible equivalent types: a definition or a translation. Although bilingual definition dictionaries do exist on the Czech market, for instance *Anglicko-český slovník personalistiky* [Koubek 2003], they tend to be very rare. Therefore, our discussion will exclusively focus on equivalence in translation dictionaries.

As regards providing equivalents, there are several options for the lexicographer, depending on the degree of equivalence. In an ideal case, full equivalents should be selected for the L2 lemmata. However, especially in humanities, this is not always possible, and alternative solutions must be sought. The overview below states the degrees of equivalence and the corresponding steps to providing their translation:

- **Full equivalence.** A translation equivalent is provided without any necessary additional information.
- **Partial equivalence.** The fact that the equivalent is not full should always be indicated. This can be done, for instance, by means of explanatory notes/context markers, as in the following instance of our projected dictionary of parrot-keeping:

parakeet papoušek malý dlouhoocasý ⇒ **parrot**

If the meaning of the partial equivalent can be better understood in relation to another term, such as *parrot* in our example, a cross-reference should be used.

- **Non-equivalence.** Non equivalence arises when a term in one language possesses semantic and pragmatic properties which are not shared by any existing term in the other language. Since it is unacceptable for a lexicographer to give up on providing an equivalent and simply state that it “does not exist”, some solution must be applied in indicating the meaning of the term to the user. The first solution is for the lexicographer to create a new translation equivalent using one of the following methods:
 1. lexical borrowing (creating a loanword)
 2. loan translation (creating a calque)
 3. coining a new word
 4. adding a new meaning to an existing term

Each of these methods has its strengths and weaknesses. Coining a new word, for instance, contains a danger of creating a hapax legomenon, a term that will not become accepted by users. Adding a new meaning to an existing term, in turn, will increase the degree of polysemy of the given term. Borrowing the term from the second language (either in its original spelling or adjusted to the target language spelling, e.g. *frančiza* for *franchise* in Czech) is a productive step, but does not in itself provide the meaning of the term; therefore, it should be accompanied by an explanatory note or a definition if lemmatized for the first time. Although calques convey the meaning of the concept in a better way, they run the risk of being ousted out by a corresponding loan at some later stage. Whatever the method chosen, some lexicographers advise caution in the introduction of new equivalents and propose using the label *sugg.* (= suggestion) for the newly coined translations [Šarčević 1989, 291].

Another solution to the treatment of zero equivalence is to provide an explanatory equivalent or an explanation (see 3.3.6). Although the user is left without an explicit equivalent, the meaning of the concept is made clear by the explanatory device. However, while such a solution is sufficient for the mere reception of a L2 text, it presents a problem when attempting at a translation. Therefore, a combination of a suggested

translation with an explanatory equivalent or an explanation appears as a recommendable option as seen in the following entry taken from our projected dictionary of parrot keeping:

clicker clicker, klikr mechanická výcviková pomůcka vydávající cvakavé zvuky, jimiž se zvířeti signalizuje správné provedení úkonu ⇒ **clicker training**

clicker training výcvik pomocí klikru výcviková metoda, při níž je zvíře motivováno kombinací mechanického zvukového podnětu a odměny ⇒ **clicker**

Although such a combined entry takes up a considerable amount of space, the instances of non-equivalence are not likely to occur in large numbers. Therefore, the entries will not represent a serious threat to the dictionary size, while the user can benefit from both the presence of an equivalent and the explanation of the concept in question.

Besides the above-mentioned steps, lexicographic selection involves a number of additional problems. One of these is the problem of **directionality** in bidirectional dictionaries. Although most of the dictionaries appearing on the Czech market (14 dictionaries out of 25 in our sample) are single-direction, there are also some bidirectional dictionaries, i.e. those containing two word lists in each direction. There are basically two approaches to dealing with bi-directionality. The first is to provide all the relevant linguistic and encyclopaedic information in one of the directions (a solution employed, for instance, by HÁJKOVÁ in the sample) and then adding a reverse word list where this information has been left out.

The second solution is to provide the relevant information in each of the directions, taking the individual direction (from Czech into English or vice versa) into consideration as far as user reception, production and translation needs are concerned. Such a solution in actual fact leads to the creation of two independent dictionaries, either contained in a single volume (MALINOVÁ) or published separately (HANÁK). Although more time-consuming to implement, the latter approach is preferable to a mere reverse word list¹ stripped of any linguistic or encyclopaedic information considering the fact that Czech users need bilingual LSP dictionaries for production purposes almost as often as for the purposes of reception (see 3.4). Therefore, each direction will require specific type of information, depending on whether the user is going from the known into the unknown or vice versa.

4.4 Design of the dictionary

The guidelines proposed below represent general suggestions for the design of Czech bilingual specialized dictionaries. They are intended to serve as a springboard for the discussion of the individual dictionary types introduced in the second part of the chapter. It needs to be remembered that not even the most complex dictionary type – the unreduced dictionary – will contain *all* of the information items discussed here; the specific character of each lexicographical project will result in the inclusion of some items while discarding others. The guidelines are presented in terms of individual dictionary components and structures, roughly following the pattern of the analysis described in Chapter 3.

4.4.1 The outside matter

The section presents basic recommendations for the preparation of the outside-matter of a specialized dictionary, stating the necessary as well as optional information to be included therein. Although most of the outside matter components will not be prepared until the lexicographer has completed the word-list, we deal with these first to be able to subsequently proceed to the crucial problems of dictionary structures.

¹Some practical tips on reversing a word list can be found in [Newmark 1989, 37-48] and [Sciarone 1983, 413-419].

4.4.2 Front matter

The front matter of any specialized dictionary, regardless of type, should comprise a minimum of two components: a preface and a user's guide. A table of contents is additionally recommended in dictionaries comprising several sections. Optionally, there can also be an encyclopaedic section and a dictionary grammar.

A table of contents. Unless the dictionary is a minimal glossary-like type without much else besides the word list, a table of contents has its rightful place in it as a tool guiding the user to the desired section, especially if the dictionary contains numerous appendices or other outside matter components to which attention needs to be drawn. While highly recommendable in an alphabetical dictionary, a list of contents represents an absolute necessity in a dictionary arranged systematically, as the individual conceptual sections would be difficult to find without one.

Occupying a single page at most, a table of contents does not represent a size-threatening component, while lending the dictionary a certain "professional" image. To make it more prominent, the lexicographer is advised to place the list of contents at the beginning of the front matter just before the preface.

A preface. Although not necessarily sought after by users, a preface represents an important dictionary component in that it provides relevant background information on the lexicographic project. A knowledgeable buyer or a critic should be able to consult the preface for the dictionary's crucial facts and figures to assess its suitability for his/her own reference needs. Although the preface can contain a variety of data, the following minimum is recommended:

- **LSP fields and subfields covered.** Is the dictionary single- or multi-field? What fields and subfields are included? What fields, by contrast, have been left out (and why)?
- **Dictionary size.** How many lemmata or, alternatively, lexical units (including those contained in sub-entries) does the dictionary contain? If the dictionary is bi-directional, are the lemma counts identical in both directions or do they differ?
- **Dictionary purpose.** What functions is the dictionary designed to serve? Is it intended for active or passive use? Is translation one of its functions? If so, what features are included to facilitate it?
- **Intended users.** Is the dictionary primarily intended for Czech users needing help with a foreign language or vice versa? Is the dictionary aimed at experts, semi-experts or even non-experts? What features does the dictionary contain to aid the less expert users?
- **Lexicographic selection** What chief sources were the lemmata excerpted from? (It is not recommendable to make only vague reference to "long-term excerption" from a "variety of sources", but to give some concrete examples of databases, journals, existing dictionaries, etc.) What were the basic criteria for lemma selection? Can anything be said about the selection of equivalents with respect to the cultural (in)dependence of the dictionary and the terminological (in)congruency of the two languages?

Besides these crucial preface components, the lexicographer may optionally consider several additional ones. For instance, a note on the dictionary's authorship can provide information on the lexicographic team – its institutional background and expertise in the given LSP area or linguistics. A comment on the need for the dictionary may, in turn, explain its uniqueness or advantages over the existing dictionaries. Finally, the preface can also contain acknowledgments unless they are provided as a separate front-matter component.

User's guide This dictionary part is as important as the preface and should be kept separate from it, despite the tendency of some Czech dictionaries to blend these two components into

one. The user's guide is in fact a short manual instructing the user on how to efficiently access and utilize the information contained in the dictionary.

As mentioned in 3.3.1, the term "user's guide" is not found in Czech bilingual dictionaries. Instead, they tend to refer to the "Arrangement of the dictionary", "Dictionary structure", "Comments of the editors on the basic arrangement of the dictionary", "Structure of the dictionary article" and other names of a similar nature. While these titles are not ideal, as they omit the instruction-giving character of the user's guide, they are so much used by Czech lexicographers that attempting to devise a brand-new name might be doomed to failure. However, if a suggestion is to be given, the title "Pokyny uživatelům" appears appropriate, as it closely resembles the established English term "user's guide". Alternatively, the name "Návod k použití slovníku" also captures the function of this dictionary component quite successfully.

While the preface is generally made up of continuous text, a user's guide will consist of a series of instructions interrupted by authentic examples from the dictionary. The contents of the user's guide will always depend on the complexity of the given dictionary's macro- and microstructure. However, it is possible to pinpoint some information items that ought to be included in every user's guide regardless of the dictionary's size, function or complexity:

- arrangement of lemmata (macrostructure)
- lemmatization of multi-word terms (according to the first or head constituent)
- arrangement of the article (microstructure), including the presentation of linguistic information, i.e. grammar, collocations, usage examples, etc., and encyclopaedic information.
- comment on spelling and pronunciation (if provided)
- comment on labelling (field and linguistic labels)
- comment on equivalence (may include notes on polysemy or homonymy)
- comment on the cross-reference structure

If niching or nesting is applied, a note should be provided on the repetition symbol used (if any); most often it will be the tilde. Finally, there appears to be a tendency among Czech bilingual LSP dictionaries to provide two user guides – one in Czech and one, identical in contents, in English. This practice is commendable where English-speaking users are included in the target group besides Czech-speaking ones. Where they are not, the user's guide in English is largely optional.

Encyclopaedic section and dictionary grammar Although warmly recommended by Aarhus authors, these two optional dictionary components are highly unlikely to become adopted by Czech lexicographers in the foreseeable future. As stated in 3.3.1, the task of the encyclopaedic section is to provide a description of given LSP area with its specific features for each language community, while the dictionary grammar aims at introducing the grammatical characteristics and irregularities of the languages involved.

Although not dismissing these two components altogether, suggestions can be made to incorporate some of their features into the commonly used components, while leaving out whatever exceeds the scope of a regular bilingual dictionary. First of all, it is unrealistic to expect that authors will start providing lengthy encyclopaedic introductions on the subjects of law, medicine, ecology, etc. in the front matter of their dictionaries, especially regarding the fact that many of the Czech specialized dictionaries are multi-field. Instead, the encyclopaedic information can be incorporated into the dictionary by means of explanatory labels in the individual entries (these can be written in a smaller font to save space), such as in [Chromá 1995, 187]:

LL.D. [elɛl'di:] *abbrev Doctor of Laws* doktor práv nejvyšší akademická hodnost právníka

In addition, information of an encyclopaedic character can be included in the dictionary middle or back matter in the form of diagrams, charts, lists, pictures, authentic examples of various documents, etc.

As regards the dictionary grammar, the situation is similar – an independent grammar section can be replaced with information items incorporated into the existing components. Due to the widespread character of English, we do not believe it is necessary to provide an introduction to the English grammar system, as it will be fairly known to users. In addition, given that Czech bilingual LSP dictionaries are primarily intended for Czech users, it is not necessary to describe Czech grammar either. Instead, English morphological irregularities can be indicated where necessary inside the individual articles or, alternatively, a list of irregular verbs can be placed in the back matter. In addition, some syntactic features of individual English terms will be indicated through valency, collocations or implicitly in the usage examples.

4.4.3 Back matter

Although largely undeveloped in Czech bilingual dictionaries with the exception of the informative label, the back matter represents an outer structure component with a great deal of potential for including valuable linguistic and encyclopaedic information.

Appendix Frequently used by foreign ESL dictionaries, the appendix represents a rather neglected dictionary component in specialized dictionaries. This is a rather unfortunate fact, as a well-designed appendix can to some extent compensate for the conceptual fragmentation inherent in the alphabetical arrangement.

To enliven the dictionary with diagrams, pictures and documents, as well as to present the user with some basic facts and figures regarding the given LSP field, the appendix can be compiled as a sort of encyclopaedic supplement to the dictionary. The character of the information provided will, naturally, vary depending on the field. Thus, for instance a dictionary of traffic can provide labelled pictures of traffic signs used in English-speaking countries, a dictionary of military terminology may include a diagram of military ranks, a law dictionary can contain examples of the most common forms of legal contracts in English with their translations into Czech, while a dictionary of education could be advised to provide fact-files comparing the educational systems of Britain, USA and the Czech Republic. The possibilities are almost endless, ranging from conceptual diagrams to cultural facts or information on important legislation related to the second-language community.

Apart from the above-mentioned encyclopaedic data, the appendix offers an opportunity to include other information items, such as lists of abbreviations used in the given LSP area, tables of weights and measures, lists of irregular verbs, differences between British and American usage, etc. The main criterion is potential usefulness, not merely the inclusion of an appendix for an appendix' sake.

Index Since an overwhelming majority of Czech bilingual dictionaries are arranged alphabetically, and, in addition, they do not tend to include the encyclopaedic section or dictionary grammar, an index appears as a rather redundant dictionary component. Its existence is only justified in systematic dictionaries, where it will enable the user to locate the place in the dictionary where the desired lemma is treated. However, it is extremely unlikely that Czech publishers would be prepared to accept a substantial increase in the planned dictionary's size due to the inclusion of an alphabetical index of terms otherwise lemmatized systematically. Therefore, the concept of the systematic dictionary appears impractical and user-unfriendly, as will be shown below.

Bibliography The inclusion of a bibliography in the back (or, possibly, front) matter is related to the author's honesty about the sources he/she used in compiling the lemma list. Although

necessarily selective, the bibliography adds credibility to the dictionary and its inclusion is, therefore, recommended.

Informative label Essentially commercial in purpose, the informative label is a useful tool for capturing the buyer's attention and convincing him/her of the dictionary's merits on a relatively limited space. Therefore, not including it on the back cover of the dictionary and leaving that space blank appears as a waste of commercial opportunity. To provide the user with the relevant data, the informative label should contain at least the following items:

- dictionary size
- dictionary purpose
- intended user
- LSP areas covered
- any user-friendly features contained (grammar, collocations, synonyms, pronunciation, etc.)

In addition, some commendatory notes can be made regarding the dictionary's uniqueness compared to other existing dictionaries, the obvious aim being to raise the potential users' motivation to buy the product.

4.5 Macrostructure

The present section discusses the strengths and weaknesses of individual kinds of lemma arrangement and provides recommendations for macrostructural choice depending on the planned dictionary type.

4.5.1 Systematic macrostructure

Arranging lemmata thematically within a conceptual system of a given LSP area, the systematic macrostructure represents an ordering in which the conceptual coherence of the terminology is not interrupted by the alphabet. For this reason, it is recommended by some linguists as an appropriate arrangement for a specialized dictionary as opposed to the alphabet's suitability for the general dictionary.

Let us, as an example, consider our projected dictionary of parrot-keeping. Should a decision be made to arrange it systematically, the dictionary could be divided into the following subsections:

1. Parrot species
2. Biology of parrots
3. General care of parrots
4. Health and diseases in parrots
5. Parrot breeding
6. Legislation and conservation

Although such an arrangement may appear attractive at face value, a user seeking quick help with a word or phrase encountered in a text may find reaching the corresponding lemma a troublesome task. Let us say the the subject of the lookup is the term *closed band*². Is the user supposed to look for it under "General care of parrots?", "Parrot breeding" or "Legislation and conservation"? The mere thinking about the possibilities of lookup costs the user time, which is what an alphabetical arrangement would prevent.

²uzavřený kroužek

On the basis of the analysis of the sample systematic dictionaries and taking the user-oriented approach as our standpoint, we can safely claim that the systematic arrangement is not to be recommended for a bilingual specialized dictionary aimed at quick lookup of terms for the purposes of L2 reception or production. Especially unsuitable for these purposes is the systematic macrostructure subtype with little or no alphabetical element present, as seen in MURRAY, the sample dictionary of medicine. The information cost in such a dictionary is extremely high, as the user has to browse through a large number of entries to access the desired one.

A greater degree of user-friendliness can be found in dictionaries possessing an “outer” systematic arrangement, i.e. ordering lemmata according to thematic fields, but then providing an inner alphabetical arrangement of these fields. Such an instance is encountered in two sample dictionaries, MACHAČKA and HERĚMANSKÝ. While showing some advantage in providing an easily surveyable lemma stock for each thematic field, these dictionaries still have a rather high information cost and display a textbook-like rather than dictionary-like quality³ – a feature which a user in need of a speedy lookup may not appreciate.

To conclude, it appears that the specialized lexicographer can never fully sacrifice the alphabetical arrangement if user-friendliness is his/her goal. To compensate for the breaking up of the thematic areas caused by the choice of the strict alphabetical arrangement, field labels can be used to indicate the belonging of the term to a greater whole. In addition, the appendix provides an opportunity to indicate the structure of the field and its internal relations in the form of diagrams, pictures and other illustrative devices.

4.5.2 Alphabetical macrostructure

Having designated the alphabetical macrostructure as best suiting the purposes of a bilingual specialized dictionary, we shall now consider the different types of the alphabetical ordering. It is not our intention to pinpoint a single one as the “ideal” type while dismissing the others as inappropriate; each arrangement has its strengths and weaknesses when used in a particular dictionary project. Therefore, we shall draw attention to the suitability of the individual alphabetization types in relation to the dictionary’s purpose and range of coverage.

Letter-by-letter vs. word-by-word arrangement

One possible division within the alphabetical macrostructure is based on the letter-by-letter or the word-by-word distinction (see 3.3.3). As established by our analysis, Czech bilingual specialized dictionaries display an overwhelming preference for the word-by-word arrangement. Its obvious advantage has been aptly stated in the preface to one of the sample dictionaries, MERTA: “The lemmata are arranged according to the characters of the English alphabet using the “word-by-word” method, which is advantageous for specialized dictionaries in that multi-word terms are ordered depending on the alphabetical sequence of the following constituents of the lemma. This gives rise to compact thematic groups of lemmata” [Merta and Mertová 1994, 6].

Therefore, the advantage of the word-by-word arrangement is inseparably linked to the lemmatization of multi-word terms, the clusters of which are not interrupted by unrelated items. As the occurrence of multi-word terms has been found to be very high in both English and Czech terminologies, it is, safe to regard the word-by-word principle as preferable for both Czech-English and English-Czech bilingual specialized dictionaries.

The strict-alphabetical versus nest-alphabetical macrostructure

Apart from the letter-by-letter versus word-by-word arrangement, another distinction within the alphabetical macrostructure concerns the strictness of application of the alphabetization principle. As shown in 3.3.3, we distinguish between the **strict-alphabetical** macrostructure, where the lemma ordering strictly follows the alphabetical sequence of letters in the source language, and **nest-alphabetical** principle, where some interruption within the alphabetical sequence is allowed

³In all fairness to the author, this is what Machačka probably intended his dictionary to be – a half-textbook.

to indicate semantic relations among terms. The strict-alphabetical principle is further divided into the **straight-alphabetical** system and **niche-alphabetical** system. Stated below are the recommendations regarding each of these alphabetical arrangements.

Straight-alphabetical ordering The simplest of macrostructures, the straight-alphabetical ordering consists in an one-lemma-one-article correspondence, i.e. there are no sublemmata. As a consequence, the arrangement enables the quickest lookup, as the user only has to follow the sequence of headwords; there is no need to search inside the articles. Therefore, this direct access can be said to possess the lowest information cost.

For illustration, let us consider an imaginary example from the projected dictionary of parrot-keeping:

egg vejce
egg binding zadržení vejce
egg breaking rozbíjení vajec
egg inspection kontrola vajec
egg mixture vaječná míchanice

Despite the ease of access, allowing each term the luxury of one separate article may represent a space-consuming procedure in a larger dictionary. Thus, this arrangement can only be applied in dictionaries where space-saving is not a major concern.

Although the straight-alphabetical macrostructure is in itself simple, the individual lemmata may be quite complex. The preoccupation of the article with a single term enables the provision of a wealth of linguistic and encyclopaedic information, ranging from definitions to valency information, collocations and usage examples (all without a sublemma status). The inclusion of such information in more complex macrostructures becomes, naturally, more difficult. Therefore, it is no surprise that it is the sample dictionaries richest in linguistic or encyclopaedic information (KALINA, COLLIN, MINIHOFFER, HÁJKOVÁ) that display the straight-alphabetical arrangement. A conclusion may be drawn from this that the straight-alphabetical arrangement appears suitable for dictionaries intending to cover a wide variety of linguistic and non-linguistic information, due to the complexity of their individual entries.

On the other hand, the very same arrangement also seems to be favoured by glossary-like dictionaries of mostly technical subjects (VLK, VEDRAL, HORÁK), simply for the reason that the straight-alphabetical macrostructure is easiest to construct, the more sophisticated arrangements requiring a greater degree of lexicographic erudition. In other words, the straight-alphabetical arrangement is also suitable where the author simply wishes to present a bilingual terminology without a great deal of additional information, whatever the value of such a dictionary to the user.

The above-mentioned low information cost afforded by the straight alphabet comes at the price of scattering semantically related terms. Thus, in VLK, the sample dictionary of motor vehicles, the lemmata *gear*, *change gear* and *reverse gear* appear at totally different places in the dictionary. For the lookup of an isolated term this will not pose a problem, as the initial-alphabetical principle will guide the user to the required lemma safely. However, for anyone wishing to gain the knowledge of the terms related to the given lemma, the information obtained will not be complete.

Niche-alphabetical ordering This ordering is a “cross-breed” between the straight-alphabetical and nest-alphabetical arrangement. While organizing related items in compact columns of sublemmata headed by the niche lemma, it also strictly preserves the alphabetical principle, so interruptions are allowed neither in relation to the previous and the following lemmata nor among the sublemmata inside the niche. Illustrated below using the same lemma sequence from our projected dictionary are the two subtypes of niching, i.e. **listing** and **clustering**:

Eclectus Parrot eklektus různobarvý

egg vejce

~**binding** zadržení vejce

~**breaking** rozbíjení vajec

~**inspection** kontrola vajec

~**mixture** vaječná míchanice

endemic endemický

Eclectus Parrot eklektus různobarvý

egg vejce; ~**binding** zadržení vejce; ~**breaking** rozbíjení vajec; ~**inspection** kontrola vajec; ~**mixture** vaječná míchanice

endemic endemický

The analysis carried out in the previous chapter revealed that niching is a universally applied ordering principle, found in both dictionaries of technical disciplines and humanities, especially in its listing subtype, which is more-easily surveyable, while clustering is more space-saving. Most of the dictionaries employing niching are of the reduced type. All the niched dictionaries examined make use of the tilde as the repetition symbol to save space, although niching also allows the full repetition of the niche lemma in the multi-word term.

Despite the fact that the niche-alphabetical macrostructure appears an attractive arrangement, its design is not entirely without problems. The most important one concerns the lemmatization of collocations. While nesting allows the presentation of collocations as sublemmata, without making any distinction between collocations and multi-word terms, niching is unable to do that. The reason is that all the collocations presented as sublemmata would have to begin with the same word as the niche lemma to observe the strict alphabetical ordering. However, the choice of collocations would be severely limited in that case, mostly to verb+noun collocations – not an ideal situation, considering the small number of verbs in specialized dictionaries.

As a consequence, alternative solutions have to be sought to be able to provide a wider range of collocations. One of these is employed by STRAKOVÁ, a sample dictionary of business. Here, collocations – unlike multi-word terms – are not regarded as fully-fledged sublemmata. They are presented in a different font (italics) and freely inserted in between the individual multi-word sublemmata [Straková, Bürger, Hrdý 1 2000, 374]:

level hladina *f*, rovina *f*, úroveň *f*, stupeň *m*, výše *f*, stav *m* (zásob)

at the governmental ~ na vládní úrovni

at the highest ~ na nejvyšší úrovni

prices have reached the lowest ~ ceny dosáhly nejnižší úrovně

reach peak ~ *s docílit nejvyšších kurzů*

~**accrual** vyvážený přírůstek *m*

~**crossing with gates** železniční přejezd *m* se závorami (*dop.*)

~**indicator** ukazatel *m* úrovně

An alternative solution would be to provide collocations at the end of each lemma column, again in a different font. The system adopted by STRAKOVÁ, although not without its typographical disadvantages, is more user-friendly, as the collocations relate directly to the individual sublemmata.

To summarize, the niche-alphabetical arrangement is suitable for a wide variety of dictionaries regardless of the LSP area covered. Its advantage as opposed to the straight-alphabetical ordering is the highlighting of related terms by their inclusion in an alphabetical niche. As the strict alphabetical ordering of lemmata must always be observed, the provision of collo-

cations is only possible if these are presented in a different format than the sublemmata. It appears that niching is an arrangement well-suited for dictionaries with a reduced amount of linguistic and non-linguistic information, as the existence of sublemmata is allowed without the dictionary becoming too chaotic.

Nest-alphabetical ordering Resembling the niche-alphabetical macrostructure in the presence of sublemmata and the ways of their presentation, “nesting” is an arrangement which is prepared to break the alphabetical sequence in the word list to hold semantically related terms together. Therefore, it is also called a **non-strict alphabetical arrangement**. There are two ways in which the alphabetical principle can be disrupted. First, it can be in relation to the preceding and the following lemmata while preserving the strict alphabet among the elements of the nest – an ordering called **first-level nesting**. Second, in an arrangement called **second-level nesting**, the alphabet is disrupted in relation to the preceding and following lemmata as well as inside the nest, mostly in order to group together morphosemantically related sublemmata. In this way, several alphabetical arrangements can occur inside the nest.

The fundamental question when choosing nesting as a macrostructure is whether the provision of semantically related terms in one place is worth sacrificing the strict alphabetical principle, the price to be paid consisting in the decreased ease of access to terms appearing as sublemmata. The relatively high occurrence of nested dictionaries in our sample (see 3.3.3) suggests that Czech lexicographers do acknowledge its advantages despite the loss of direct access to lemmata. To illustrate the advantages by a concrete example, let us show how the above-stated entry from the projected dictionary of parrot-keeping would be expanded if the first-level nesting principle were applied to it:

Eclectus Parrot

egg vejce
~**binding** zadržení vejce
~**breaking** rozbíjení vajec
empty ~ prázdné vejce
fertile ~ oplozené vejce
hatch ~s sedět na vejcích; vysedět vejce
~**inspection** kontrola vajec
~**mixture** vaječná míchanice
endemic

Alternatively, the same extract arranged according to the second level nesting principle would look in the following way:

Eclectus Parrot

egg vejce
~**binding** zadržení vejce
~**breaking** rozbíjení vajec
~**inspection** kontrola vajec
~**mixture** vaječná míchanice
empty ~ prázdné vejce
fertile ~ oplozené vejce
hatch ~s sedět na vejcích; vysedět vejce
endemic

From either of these examples, we can see that the number of sublemmata of the lemma “egg” has grown by another three compared to the niched article: *empty egg*, *fertile egg* and

hatch eggs. No difference is made between a multi-word term and a collocation, as users are not likely to make the distinction either. Admittedly, the information cost of such an ordering is increased in that the user may, for instance, start looking for the equivalent of *empty egg* under *empty* (which may or may not be there as a separate lemma) only to realize that the term is lemmatized under *egg*. On the other hand, the user, having found the desired term, is also able to learn a number of related terms, such the antonym *fertile egg* and others. Consequently, the strength of the nesting principle consists in the access to related terms in a way that is not enabled by either of the previous alphabetical systems. However, it is always important to explain the nested lemma structure and the lookup strategy in the user's guide in the hope that the user will take time to consult it.

Despite the advantages stated, both the niched and the nested arrangements possess a limitation alluded to earlier – they are only viable in dictionaries with relatively simple microstructures, i.e. those containing a low amount of linguistic and encyclopaedic information, i.e. reduced and minimal dictionaries (although, as stated above, the latter tend to be overwhelmingly straight-alphabetical). Collocations and explanatory notes is what such macrostructures can cope with at most, yet other information types, i.e. definitions, lexical paradigmatic information, usage examples, etc. would overload the system of sublemmata and make the entries too chaotic. Therefore, if a lexicographer is preparing a dictionary of a relatively new field (such as ecology or communication technologies in our sample) or simply any field requiring some encyclopaedic input (e.g. definitions of little-known or problematic terms), the straight-alphabetical system appears the most advisable. The same applies to a dictionary project where a greater amount of linguistic information than average is planned.

Additional macrostructural problems

Having selected a particular type of macrostructure, the lexicographer needs to deal with a number of additional problems. The two to be discussed in the present guidelines involve the lemmatization of multi-word terms and the lemmatization of numerical and alphanumerical items.

As regards the manner of lemmatizing multi-word terms (see also 3.3.3), there are three basic options available:

- The multi-word term is lemmatized according to its first constituent.
- The multi-word term is lemmatized according to its head constituent.
- The multi-word term is lemmatized both according to its first and head constituent (provided they do not overlap). The full lexicographic information is provided in one lemma only, while the other is cross-referenced to it.

There is some relation between the lemmatization of multi-word terms and the macrostructure type. While the straight-alphabetical arrangement will always lemmatize multi-word terms according to their first constituents, the niche- and nest- alphabetical systems can utilize any of the three solutions⁴. The lemmatization according to the first constituent has the lowest information cost; therefore, perhaps, it is found in a majority of Czech bilingual LSP dictionaries. The lemmatization according to the head constituents, in turn, enables the grouping together of related terms which would otherwise be scattered across the dictionary, as can be seen on the example of two simplified imaginary extracts from the projected dictionary of parrot-keeping:

band¹ kroužek
band² kroužkovat
cloaca kloaka
closed band uzavřený kroužek
colony kolonie [...]

⁴In the case of the former, the principle applied is the so-called “quasi-niching” mentioned in 3.3.3

open band otevřený kroužek

band¹ kroužek

~, **closed** uzavřený kroužek

~, **open** otevřený kroužek

band² kroužkovat

cloaca kloaka

colony kolonie

The third solution, lemmatizing the multi-word term both according to its first and head constituent, is recommended only in terms with an extremely high frequency of occurrence. As it would be a waste of valuable space to provide all the relevant information (equivalent, labelling, grammar, etc.) in both places, it seems best to provide it with one lemma only and use a cross-reference to link the two lemmata.

Whichever manner of multi-word term lemmatization is selected, it should be clearly described in the user's guide to prevent the user from searching for the desired term under the wrong constituent.

The second additional consideration related to the macrostructure concerns the lemmatization of numeric or alphanumeric lemmata, i.e. entries such as "3-D, 20/20, 2,4,5-T" [Bergenholtz and Tarp 1 1994, 191]. The recommended practice is to lemmatize them in such a way as if they were written in letters, i.e. "three-D" etc. In this manner, it will be possible to integrate them into the alphabetical macrostructure under the first letter of their written-out form. If the terminology presented in a particular dictionary does contain alphanumerical items, the manner of their presentation should, again, be explained in the user's guide.

4.6 Microstructure: linguistic information

The present section discusses the various kinds of linguistic information recommended for inclusion in the microstructure of Czech bilingual specialized dictionaries with respect to their type and intended user group. As stated earlier, the term "microstructure" refers to the internal design of a dictionary article [Hartmann and James 2001, 94]. The category of "linguistic information" provided in the microstructure is fairly broad, comprising a range of items from spelling to usage examples.

4.6.1 Information on spelling

Spelling/pronunciation represents the first information item that a user is confronted with when consulting a desired entry. The provision of this information very much depends on the intended user group. In a dictionary aimed at Czech users needing help with English (or any other foreign language), i.e. the actual majority of Czech bilingual LSP dictionaries as revealed by the analysis, no information on Czech spelling or pronunciation is needed, as the user will, logically, possess the knowledge. Therefore, what we are really concerned with is the provision of spelling/pronunciation information with respect to the foreign language.

To take English as an exemplary language, these are the spelling information items recommended for inclusion:

General spelling variation The category comprises items that do not have a single standardized spelling form but several possible forms. This mostly concerns compound terms, where two or three ways of spelling are sometimes possible, e.g. *bathtub*, *bath-tub* and *bath tub*. However, the spelling variation can also be of a different nature – for instance, the term *parakeet* (small long-tailed parrot) has a variant *parakeet*, the preference for each one varying across authors.

If corpus evidence is available, the most frequently used variant should occur as the headword, with the others presented as additional spelling information (in brackets or otherwise). Alternatively, the variants can be individually lemmatized and cross-referenced to the most frequent form, which will contain the full lexicographic description.

Regional spelling variation With respect to English, this information item will most probably cover the differences between British and American spelling. The lexicographer should choose one spelling variety as the primary one and indicate all the instances in which there is a spelling difference based on regional usage, e.g.:

aluminium (*AmE* aluminum) hliník

The “secondary” variant should be accompanied by a regional label (*AmE* or *BrE*, *US* or *GB*, etc.). Consistency is important in stating regional variants; the existing Czech bilingual LSP dictionaries often display the shortcoming of providing this information in some terms only, while neglecting it in others.

Specific spelling features Finally, the user’s attention should be drawn towards lexemes where specific spelling features occur. A good example is an entry from *CHROMÁ*, stated earlier in the analysis [Chromá 1995, 18]:

acquit [ə'kwit] /tt/ (*v*) 1 sb. *of* st. zprostit koho viny, osvobodit koho od čeho

Here, the user is informed about the doubling of the consonant “t” without too much space being wasted on the information item. Where space-saving is not a major concern, the individual forms may be written out in full. However, provided that the indication technique is clarified in the user’s guide, the shortened form ought to be sufficient.

The first two spelling information items are advised to be included in all dictionary types, while the third should at least be provided by dictionaries intended for active (encoding) function, as the lack of knowledge of a term’s specific spelling features could lead to mistakes in L2 production.

4.6.2 Pronunciation

Unlike spelling information, where no controversial considerations seem to arise, the information on pronunciation is more problematic. The basic question to be asked is, “Does pronunciation have a place in a specialized dictionary”? There appears to be no single unanimous answer; as seen in the analysis, different authors hold different views. The decision for or against including pronunciation will always much depend on what function the compiler envisages for his/her dictionary. If the dictionary is to serve a largely passive purpose (i.e. the reception and translation of L2 texts, mostly written), then the inclusion of pronunciation will most probably be rejected. Where a more active use of the terminology is anticipated, the authors may decide on the provision of pronunciation.

The low occurrence of pronunciation in the sample dictionaries indicates that Czech specialized lexicographers still do not regard this information item as a necessary part of a bilingual LSP dictionary. This is understandable, as pronunciation places an additional demand on space in the dictionary entry and, furthermore, providing a transcription for each lemma is time-consuming. In addition, an opinion seems to prevail that where the user is in real need of the pronunciation of a term, he/she can always consult a general-purpose dictionary.

The above-mentioned view, however, can be countered by a valid argument that some terminologies, especially those of natural sciences, contain specific terms that cannot be found in

the widely available LGP dictionaries⁵. Furthermore, some terminologies are presented in the dictionary form for the first time, so the pronunciation of certain terms may be unfamiliar to users. Where the lexicographic team do decide to include pronunciation, there are several options available [Bergenholtz and Tarp 1 1994, 135]:

- phonetic transcription is given for all headwords and/or equivalents
- phonetic transcription is given only for certain headwords and/or equivalents
- instead of phonetic transcription, stress is indicated for all headwords and/or polysyllabic equivalents
- stress is indicated only for some headwords and/or equivalents

Judging from the sparse data available, the first option seems to be the norm for pronunciation-providing Czech LSP dictionaries although the second option seems appealing as well, with transcription provided only in lesser-known or difficult terms. However, the degree of terminological “difficulty” with respect to users of varying competence may be challenging to assess; therefore, the option does not tend to be adopted by lexicographers. The last two options are equally unlikely as the benefit of the indication of stress without the complete phonetic transcription is rather doubtful as far as user-friendliness is concerned.

When planning the inclusion of phonetic information, a choice of the phonetic transcription system must be made. There are three basic possibilities:

- to use of the International Phonetic Alphabet (IPA)
- to use Czech characters where possible while borrowing IPA characters for sounds not present in Czech
- to use Czech characters only

With dictionaries of English in mind, the third possibility can be rejected straight away, as the Czech characters cannot satisfactorily capture some sounds specific to English (a similar situation can be assumed for other foreign languages). Therefore, the choice remains between the International Phonetic Alphabet and its “czechitized” version.

The czechitized transcription system combines a maximum of familiar Czech characters with a bare minimum of characters representing sounds specific for English. Let us examine on a number of entries what such a “hybrid” transcription system looks like:

ancestor [ˈænsɛstə]
cage [keidž]
hatchling [ˈhæčliŋ]
macaw [məˈkoː]
sponsorship [ˈsponsəšip]
though [ðəu]

At face value, this system appears more user-friendly than the use of the IPA, the reason being that users (especially older or more conservative ones) may not feel comfortable about some of the IPA characters, while there are perfectly familiar Czech characters for the corresponding sounds. This, after all, may be the reason why this solution was found in all the sample dictionaries providing pronunciation.

Nevertheless, there are also very strong reasons for using the IPA exclusively. The first one is the growing number of Czech users who have been taught English using modern textbooks (e.g.

⁵This problem seems to be acknowledged by the authors of HÁJKOVÁ, the sample dictionary of ecology. Due to the great amount of biological terminology difficult to find elsewhere, the authors have provided pronunciation with all the lemmata.

Headway) and dictionaries (*OALD*, *MED*, *LDOCE*, etc.) where the IPA characters are employed. Admittedly, these are the users of the mainly younger generation. Their numbers, however, are on a steady increase, which is a fact worth taking into account by dictionary authors. In addition, the trend to use an international transcription system is closely connected with the policy of the *Common European Framework of Reference for Languages*, which aims at a consistent format of English teaching materials across the European Union – for more information see [Bailly et al. 2002].

With the effort across Europe to create some common standards for the materials aimed at foreign language learners (where the IPA plays a role as a widely accepted system of phonetic transcription), employing a special czechisized transcription appears as a step backwards. Although admittedly an “easier” option for some conservative users, this solution ignores the wider European trends in the production of textbooks and reference works. With respect to this fact, the use of the IPA must be recommended at least for the compilation of dictionaries rich in linguistic information and intended for active use, as these aim at being similar to the recognized learner’s dictionaries, in which the IPA is the rule.

Another reason for using the IPA is its greater precision in describing the sounds of the L2 in question. For instance, the term *nippy* from the English parrot-keeping terminology would be transcribed in the czechisized version as /'nipi/, whereas two different characters for the vowels would be employed by the IPA – /'nɪpi/ – to describe their different quality. Again, what can be viewed by the more conservative users as a burdensome increase in the dictionary information cost in fact gives the dictionary a greater accuracy of description that brings it nearer the desired standard of learner’s dictionaries. Furthermore, provided that the use of the individual IPA characters is exemplified on well-known words in the dictionary front matter (as shown practically in Appendix A), the user will be able to decode even the more unfamiliar symbols, the result being a greater accuracy of pronunciation.

To summarize, the recommendation to be made regarding pronunciation in LSP dictionaries runs counter to the overwhelming trend in Czech specialized lexicography: taking the user-friendliness into consideration, the inclusion of pronunciation must be stated as useful and beneficial, especially where the dictionary covers a new or a highly specialized terminology. It needs to be borne in mind that the “active” function of a dictionary consists in aiding the production of spoken as well as written texts, and the provision of pronunciation will prevent mistakes made by users in oral communication, especially as far as lower-frequency technical terms are concerned⁶.

As regards the use of an appropriate transcription system, the IPA can be recommended for dictionary projects containing a wealth of linguistic information and aimed at users with intermediate/advanced L2 competence, due to the resemblance of foreign learner’s dictionaries. In dictionaries with a reduced amount of linguistic information, the compiler is asked to carefully consider the needs of the target users to make an informed decision on the choice of the transcription. The czechisized version will be appreciated by more conservative users who aim at maximum convenience. However, the use of the IPA will pose no problem to users with experience in the work with foreign teaching materials, and will provide the dictionary with a greater accuracy of phonetic description, not to mention the compliance with the trend set by the *Common European Framework of Reference for Languages*. In minimal glossary-like dictionaries, the provision of pronunciation is highly optional due to the fact they can only serve a passive function.

Finally, a point can be made referring to the future of printed dictionaries. As seen in HORÁK, a sample dictionary of forestry, as well as a number of foreign ESL dictionaries, there is a possibility of publishing a printed dictionary together with its electronic version on a CD-ROM. Apart from its main advantages (i.e. hypertext search and Boolean search), the electronic version offers an additional bonus of including recorded pronunciation for each term. That way, space can be saved in the printed dictionary while the user is able obtain authentic pronunciation provided by a native speaker, a solution preferable to mere transcription. For more information on the compilation of an electronic dictionary see [Nielsen 1992].

⁶That said, it must be pointed out that LSP users tend to mispronounce even high-frequency terms. A very frequent mistake, observed over the years of teaching practice, is e.g. the pronunciation of the word *surface* as /'sə:feɪs/. A large number of similar instances could be stated.

4.6.3 Linguistic labelling

“Linguistic labelling” is a rather convenient term used to describe a series of labels⁷ conveying information on deviations from the unmarked majority of the lemma stock found in the dictionary. These deviations can be of various types – diachronic, regional, stylistic, etc. Although the theory of specialized lexicography claims that specialized language presented in dictionaries should not fall outside the unmarked centre, any analysis of real Czech LSP dictionaries will reveal regular inclusion of terms marked in one way or another.

The most consistent typology of labels (one based on Hausmann) has been introduced and exemplified in 3.3.4. Here, for the purposes of the methodology, we state the basic categories again together with the examples of the most frequent labels found in the sample dictionaries.

Label type	Examples
diachronous	zast., hist.
diatopical	BrE, AmE, US, GB
diatechnical	med., arch., admin., anat., zool.
diainegrative	lat., it., fr.
diamedial	hov.
diastratic	slang
diaphatic	fml, infml
diatextual	bibl.
diafrequent	zř.
diaevaluative	žert.
dianormative	nespr.

Table 4.1: Types and examples of linguistic labels in Eng-Cz and Cz-Eng dictionaries

Labels can be provided in both source and target language terms. Although they are usually applied to lemmata rather than equivalents, it may, for instance, occur that an English term has a marked equivalent in Czech, perhaps a colloquial or slang expression such as in this example [Řáda 2001, 115]:

crop duster 1 VIZ *crop-dusting aircraft 2* hov práškař, pilot zemědělského letadla

The decision to use the label with the lemma or the equivalent will always depend on the individual instance, although maximum consistency should be aimed at.

Labelling can be recommended for use in all three dictionary types, the choice of labels depending on the character of the terminology described. For instance, BALEKA, a sample minimal dictionary of arts, displays a high frequency of diainegrative labels due to the high occurrence of loanwords in the arts terminology. Similarly, ŘÁDA, a reduced sample dictionary of aviation, contains examples of diastratic and diamedial labels owing to the presence of colloquialisms and slang expressions in the terminology of aviation.

An important fact to bear in mind is that the form of linguistic labels should be coordinated with the form of other linguistic information. Thus, for example, if the dictionary authors decide on the use of English rather than Czech indicators of linguistic information, then the English forms of linguistic labels (as known from ESL dictionaries) should also be used. Where grammar is described by means of Czech indicators, Czech labels will be appropriate.

⁷An alternative treatment of these labels has been offered by [Landau 1989, 72], who calls them “usage labels”. However, Hausmann’s typology is more detailed.

4.6.4 Grammar information

A truly user-friendly specialized dictionary would hardly be thinkable without some amount of information on grammar, presented with respect to both the target user and the intended use. Since many authors of Czech LSP dictionaries are field experts, not linguists, grammatical information tends to be neglected or used incorrectly in their dictionaries. The following guidelines should provide some recommendations regarding the inclusion of information on grammar in Czech LSP dictionaries.

First of all, the design of dictionary grammar should take two factors into consideration: the user's language background and the character of the second language covered by the dictionary. Accepting that Czech bilingual LSP dictionaries are mainly produced for Czech users who seek information on a foreign language, it becomes obvious that information on Czech grammar is redundant, as users already possess the knowledge; providing grammatical information on the native language in a specialized dictionary amounts to sheer luxury.

Despite this, we still see a number of Czech dictionaries of English providing such information items as gender (*m, f, n*) or word class (*n, adj, v*) with Czech lemmata or equivalents. Unless English speakers in need of help with Czech are included in the preface as intended users (which they almost never are), such information is without any real value. However, where the use of the dictionary by foreign speakers is a genuine objective, the provision of information on Czech morphology should be considered.

It appears logical to use the item of **word class** as a point of departure in the discussion of grammatical information in a LSP dictionary. Although the item itself may not be explicitly stated in the microstructure, the individual word classes subsume a number of specific grammatical categories that could present potential problems to the dictionary user and may have to be stated in the dictionary.

The necessity of the indication of word class can be argued to depend on the character of the foreign language in question. For English, word class appears to be a largely optional item, as it will in most instances become obvious from the Czech equivalent. The *explicit* indication of word class may be considered by dictionary projects that aim at similarity to the foreign ESL dictionaries, where the statement of word class tends to be the norm. Its provision can be planned in combination with other information items, i.e. countability in nouns or transitivity in verbs, as seen in an extract from the projected dictionary of parrot-keeping:

breed /bri:d/ (bred – bred /bred/) *v* 1 [ɪ] rozmnožovat se, množit se, mít mladé, hnízdit
2 [ɪ] chovat, odchovávat *co*

In simpler dictionaries where the information on countability or transitivity is left out or where it is not presented by any specific indicators, the provision of word class for each lemma becomes rather unnecessary. Instead, a recommendation can be made to state word class only in some special instances which could confuse the user, e.g. where the equivalent is of a different word class from the lemma, or in conversion pairs as shown in the following imaginary example:

perch¹ *n* bidlo, bidélko
perch² *v* sedět na bidle

For other languages than English, it is up to the lexicographer/co-operating linguist to consider how the inclusion of the word class would benefit the intended user with regard to that particular language.

The provision of word class having been treated, the discussion will now focus on the specific grammatical categories pertaining to the word classes whose coverage can be expected in a LSP dictionary, i.e. the noun, the verb and the adjective/adverb.

1. THE NOUN

Gender Considering what has been suggested in relation to Czech and due to the existence of natural gender in English, the indication of gender is not recommended in dictionaries of English due to its redundancy⁸. However, in languages possessing grammatical gender (such as German), this information becomes vital for active use of the terms and should, therefore, be indicated in all dictionary types. The provision of gender usually has the form of internationally recognized abbreviations *m*, *f*, *n* for masculine, feminine and neuter, respectively.

Number The indication of number (*pl.*, rarely *sg.*) is recommended in special cases only, regardless of the dictionary type. Such cases include, above all, pluralia tantum, i.e. plural-only terms like *credentials*, *goods*, *arrears*, etc. The indication of plural here is a signal to the user that these terms cannot be used with the indefinite article and only verbs in the plural can be used in combination with them. Some dictionaries, e.g. BAŽANT, use the abbreviation *plt.* to indicate pluralia tantum.

Apart from pluralia tantum, the plural may also be indicated in single- or multi-word terms which, besides normally possessing a singular form, occur in the plural in a specific meaning. To exemplify, here are a number of such lemmata excerpted from [Hájková et al. 1998]:

compensations (pl.) kompenzace (pl.), náhrady (pl.)
complaint records (pl.) záznamy o stížnostech
field conditions (pl.) polní podmínky

Note that in the first example, the indication of plural with the Czech equivalent *kompenzace* is entirely justified, as the word has the same plural and singular form in Czech, which could mislead the user. In the second equivalent, *náhrady*, it is rather redundant. In dictionaries of biology-related disciplines, there is also a tendency to lemmatize the names for various organisms or animal species in the plural. In such instances, the label *pl* is a necessity:

filamentous algae (pl.) vláknité řasy [Hájková et al. 1998, 143]

Importantly, number (again, in the form of the label *pl.*) needs to be indicated in nouns possessing irregular plural. The explicit statement of the irregularity represents a vital information item in any type of LSP dictionary, especially in lemmata of foreign origin where the plural form is difficult to predict, as seen in the following examples from [Rulík, Husák, Květ 1996]:

taxon (pl. taxa) taxon
genus (pl. genera) rod

Where a regular plural is possible alongside the regular one, e.g. *cactus* – pl. *cacti* as well as *cactuses*, both forms should be stated.

The provision of the label *sg.* for the singular is not so common and, in fact, its occurrence across the sample is very sparse. It is usually limited to words that are strictly uncountable yet prone to be erroneously used in the plural, such as in this example from [Chromá 1995, 23]:

advice /əd'vaɪs/ (*jen sg.*) rada; rady

⁸The only exception is, perhaps, represented by some special instances of the use of pronouns *he*, *she*, *who*, etc. to refer to non-persons. Here, some information on gender would be advisable, either by means of a label or in the form of a usage example.

An alternative to information of this kind is to introduce a separate category of countability, as seen below.

Countability This nominal category is virtually absent from Czech bilingual LSP dictionaries, the possible reasons being the lack of involvement of linguists in their production or a general reluctance to overwhelm the entries with morphological information. However, despite constituting an extra information item, countability can prove beneficial to the user. This especially concerns dictionaries aimed at production in and translation into English, where the knowledge of countability of a given term can contribute to correctness of expression.

As countability represents a neglected morphological category in Czech LSP dictionaries, there exist no Czech abbreviations or other symbols to indicate it. The indicator *jen sg.* seen above cannot be regarded as optimal, as there are a large number of nouns which can be either countable or uncountable, depending on context. Therefore, the dictionary author will either have to invent a Czech indicator (e.g. *poč./nepoč.*) or use the standard indicators present in the authoritative ESL dictionaries: [C], [U] and [C/U] for “uncountable”, “countable” and “countable/uncountable”, respectively. Although foreign in origin, these indicators have the advantage of being familiar to all the learners of English who have ever used an English monolingual dictionary.

Wherever countability is included, it appears advisable to indicate word class simultaneously, as the two information items are related. Such indication could, for instance, have the following form:

chování behaviour [bi'heivjə] n [C/U]

In instances where the noun can be either countable or uncountable, it is recommendable to accompany the countability information by usage examples to illustrate the difference. Thus, the above-stated entry could be expanded in the following way:

chování behaviour [bi'heivjə] n [C/U]

projevit agresivní chování display aggressive behaviour

vytrhávání peří je chování způsobené stresem feather-plucking is a behaviour caused by stress

In less complex dictionaries, there is an option to indicate countability only in terms where uncertainty may arise. In lemmata that are obviously countable/uncountable (e.g. *keeper, dish, cage, food*, to name a few from the projected dictionary of parrot-keeping), the inclusion of countability remains an optional – although undoubtedly helpful – information item.

Determination The nominal category of determination does not belong among information items normally indicated in LSP dictionaries. However, its inclusion can be regarded as substantiated in a number of specific instances; most significantly, these will concern nouns that are used exclusively with the definite article. This will be especially helpful where the dictionary intends to aid production in and translation into L2. For an example how determination can be indicated, let us consult *LDOCE* for the term “police” [LDOCE 1994, 795]:

police¹ /pə'li:s/ n [(the) P] an official body of men and women whose job is to protect people and property [...]

Such an explicit indication of determination is clear enough for the user and does not occupy too much space in the dictionary. Additionally, the information can also be

indicated implicitly where collocations or usage examples are present.

2. THE VERB

With respect to the verb, the number of categories recommended for inclusion is lower than in the case of nouns. Basically, two items come into question: one morphological (**tense**) and one syntactic (**valency**). The categories of person, mood and voice are largely redundant as far as English is concerned.

Tense The information on tense amounts to the statement of irregular forms in verbs, i.e. the preterite and the past participle. There are two possible ways of providing such information: in a grammar appendix or inside the individual articles. The second solution is advised, as users are known for their negligence of outside matter components, while inside the article the information cannot be ignored. If the dictionary provides pronunciation, the irregular forms should also be transcribed, as seen in this entry from the projected dictionary of parrot-keeping:

breed /bri:d/ (bred – bred /bred/)

Valency Concerned primarily with the complementation of verbs, valency represents an information category recommendable for inclusion in any dictionary that aspires to be more than a directory of bare terms. Its function is especially prominent in L1-L2 dictionaries, where it enables the user to form correct constructions. However, valency also has a role to play in a L2-L1 dictionary in that it informs on the basic linguistic properties of the verb lemmatized, even though the information might extend beyond the function of a passive lookup (see also 4.2). If presented economically, valency information does not require a large amount of space, so its inclusion can be recommended for both unreduced and reduced dictionaries, and, to some extent, minimal dictionaries as far as prepositional patterns are concerned.

The information on valency can be presented either explicitly, using a separate information item, or implicitly, by means of usage examples. Space permitting, the most user-friendly solution is the combination of both implicit and explicit presentation, as witnessed in a majority of ESL dictionaries.

The presentation of the valency of verbs should primarily inform the user on the transitivity of the given verb. Although the explicit statement of transitivity is extremely rare in Czech bilingual specialized dictionaries, its inclusion can, nevertheless, be advised to facilitate production in L2. As in the instance of countability, a question arises whether to indicate valency by some Czech codes devised by the lexicographer or whether to use internationally recognized codes present in the leading ESL dictionaries.

One of the few sample dictionaries that do indicate valency, the reduced dictionary HEŘMANSKÝ, has opted for the first solution, choosing the abbreviations *s. nepř.* and *s. př.* for intransitive and transitive verbs, respectively (see 2.2). Without providing usage examples and, worse still, without explaining the meaning of the two categories in the user's guide, the benefit of such information to the user is questionable.

As seen in 3.3.4, another explicit way of valency indication found in Czech LSP dictionaries is the system applied by MERTA, where verb patterns are indicated in the following way [Merta and Mertová 1994, 13]:

answer 1 odpověď (na dotaz); [...] 2 odpovědět, být v soulase (s - to);
reagovat (na - 0/to), posloužit (jako - for)

Although undoubtedly more helpful than providing no information at all, this system of stating the syntactic properties of verbs appears rather half-baked, especially as it

is unsupported by any exemplification. However, MERTA being a reduced dictionary with no implicit grammar information provided, we need to consult some of the authoritative ESL dictionaries to gain an insight into some consistent presentation of valency. Compare two entries for the same verb – “feed” – first from *OALD* and, subsequently, from *LDOCE*:

feed /fi:d/ verb, noun

■ verb (**fed, fed** /fed/) GIVE/EAT FOOD **1** ~sb/sth (on) sth— ~sth to sb/sth to give food to a person or an animal: [VN] *Have you fed the cat yet?* [...] ◇ [VNN, VN] *The cattle are fed barley.* ◇ *The barley is fed to the cattle.* **2** [V] (of a baby or an animal) to eat food: *Slugs and snails feed at night.* [Hornby 2000, 464]

feed¹ /fi:d/ v **fed** /fed/ **1** [T (**on, with**)] to give food to *We have to feed 120 guests after the wedding.* [...] **2** [I (**on**)] (esp. of an animal or a baby) to eat: *The horses were feeding quietly in the stable.* — *Cows feed on grass.* **3** [T+obj+adv/prep] to put, to supply, to provide; especially continually: *Keep feeding the wire into/through the hole.* [LDOCE 1994, 373]

As can be seen, *OALD* shows valency by special codes indicating verb patterns ([V] stands for verb used alone, [VN] represents verb + noun phrase, [VNN] stands for verb + noun phrase + noun phrase, etc. Similar codes are used to indicate the combination of verbs with clauses or phrases). In addition, preposition/adverb structures are stated with every sense of the verb. *LDOCE*, in turn, indicates transitivity by the well-established codes [I], [T] and [I/T], representing intransitive, transitive and intransitive/transitive verbs, respectively. Similarly to *OALD*, combinations with prepositions and adverbs are shown. In addition, clause patterns are indicated (e.g. [+v-ing], [+that]), etc.). In both instances, the patterns indicated by grammar codes are illustrated by means of usage examples.

For the successful incorporation of valency into Czech bilingual LSP dictionaries, it will be necessary to combine the consistency of formal description (as seen in the two above-mentioned extracts) with user-friendliness to avoid putting users off a complicated system of codes. As LSP dictionary users are very frequently people without linguistic background and the category of transitivity may be unfamiliar to them, two things need to be ensured:

- That both the category of transitivity and the codes used for its indication are clearly explained in the user’s guide.
- That – if used – the formal codes are not provided alone, but accompanied by usage examples (space permitting). Any user who fails to make sense of the formal description should be able obtain the syntactic information from these examples.

Presented below is a suggested entry from the projected unreduced dictionary of parrot-keeping which represents an attempt to combine a minimum of formal description with implicit information in the form of usage examples. No special codes for verb patterns have been invented; the traditional abbreviations [I], [T] and [I/T] are used:

feed² /fi:d/ (fed - fed /fed/) v **1** [T] ~sb/st with st | st to sb/st na|krmit, nasytit,
dát najíst komu **2** [I] ~on st živit se, krmit se čím
feed birds with varied diet krmit ptáky pestrrou stravou
feed pellets to parrots krmit papoušky granulemi
feed with a spoon/syringe/tube krmit lžičkou/injekční stříkačkou/sondou

lories feed on nectar loriové se krmí nektarem
young birds feed all day mladí ptáci se krmí celý den

An additional user-friendly procedure is to indicate valency patterns by means of explanatory notes. The user will identify the pattern immediately, without having to make sense of any special codes. Naturally, it is always best to complete the note with a usage example:

hatch v 1 [H] vylíhnout se, vyklubat se 2 [T] vasedět samice mladé
chicks hatch every other day mláďata se líhnou obden
eggs fail to hatch vejce se neklubou
the hen hatched all her chicks samice vaseděla všechny mladé

In reduced dictionaries, where implicit grammar information may not be included, valency can, at least, be indicated by means of “valency formulae” such as in this reduced version of the above-stated entry *feed* from the projected dictionary of parrot-keeping:

feed² /fi:d/ (fed - fed /fed/) v 1 ~sb/st with st | st to sb/st na|krmit, nasytit, dát
najíst komu 2 ~on st živit se, krmit se čím

With some user research carried out in the future, the recommendations regarding the inclusion of valency should become more definite, especially as far as the target users’ perception of various forms of presentation of explicit and implicit syntactic information is concerned.

3. THE ADJECTIVE/ADVERB

Although adjectives and adverbs are much rarer in LSP dictionaries than nouns and verbs, some dictionaries do lemmatize them. Provided that adjectives/adverbs with irregular comparison occur in the word list, the irregularity ought to be indicated, stating both the comparative and the superlative forms. If the dictionary includes pronunciation, the pronunciation of the irregular forms should be indicated as well.

4.6.5 Lexical syntagmatic information

The lexical syntagmatic information in bilingual LSP dictionaries involves the provision of **collocations**. The analysis has revealed that collocations tend to be included in a majority of Czech bilingual specialized dictionaries. In fact, it is their inclusion that draws the line between the old type of “directory-like” minimal dictionaries and the new type of a user-friendly reference work. If any information items must be sacrificed in an attempt to save space in the dictionary, collocations should not be among them, especially as regards “intransparent” collocations that could prove difficult to comprehend or translate. They ought to form an integral part of all LSP dictionaries (with the exception of simple glossaries), whether stated explicitly as a specific information item or implicitly within usage examples.

The approaches to the selection of collocations from the corpus have been discussed in 4.3. Having completed the selection, the lexicographer needs to decide how to present the collocations in the dictionary. The analysis has shown that three basic types of their inclusion are employed in Czech LSP dictionaries:

Collocations are presented as independent lemmata This solution is a minority one, found only in dictionaries with the straight-alphabetical ordering. Although straight-alphabetical dictionaries can, theoretically, subsume collocations (without a sublemma status), most

Czech LSP dictionaries seem to ignore this possibility. Therefore, collocations have to appear as lemmata because there is no other place for them. No special distinction is made between collocations and multi-word terms. In the projected dictionary of parrot-keeping, such an arrangement might look in the following manner:

feed krmít
feed by hand krmít ručně
feed with a syringe krmít stříkačkou
feeder krmítko
feeding krmení
feeding requirements požadavky na krmení
flock hejno

Giving collocations the same status as all the other regular lemmata appears a rather crude solution. A more systematic option is available without having to sacrifice the straight-alphabetical arrangement: the above-mentioned possibility of subsuming collocations under the lemmata without giving them a sublemma status. This can be done by presenting the collocations in a different font, preferably italics:

feed krmít
feed by hand krmít ručně
feed with a syringe krmít stříkačkou
feeder krmítko
feeding krmení
feeding requirements nároky na krmení
flock hejno

The analysis has revealed that the lemmatization of collocations tends to be favoured by dictionaries of the minimal type which do not include collocations on a large scale – a large majority of the items lemmatized are single- or multi-word terms. Where the inclusion of collocations is more extensive, dictionaries usually opt for either of the following two presentation types.

Collocations are presented in the articles, separate from multi-word terms This solution presents a more systematic approach to the arrangement of the microstructure. A strict distinction is made between multi-word terms, which are ordered alphabetically first, and collocations, which are, again, listed alphabetically, at the end of the article. The collocations may or may not be graphically distinguished from the multi-word terms. If they are not, the user may get confused by the two alphabetical orderings within the same article. Therefore, it is preferable to provide some graphical means of distinction between multi-word terms and collocations, as seen in the following extract [Malinová et al. 1993, 558]:

chod *m* action; run, running; operation
~, **asynchronní** asynchronous operation
~, **autonomní** autonomous run
~, **hlavní** main run [...]
■ **v plném chodu** in full action

Collocations are presented in the articles, mixed with multi-word terms The last solution discussed here is especially convenient for the lexicographer, as he/she does not have to spend time trying to distinguish between collocations and multi-word terms, a challenging

task on occasions (see 3.3.4). While not as systematic as the previous one, this solution may pose no special problem for the users, as they themselves are not likely to make a strict distinction between multi-word terms and collocations. Provided that the alphabetical arrangement within the article is observed, the desired construction, whether a multi-word term or a collocation, will be successfully reached, as seen in this extract from [Průcha 2005, 132]:

zkouška → hodnocení examination/test/proof/exam
cvičná zkouška (*k nácvičku skutečné zkoušky*) mock examination
dělat zkoušku take an examination/undergo an examination
doktorská zkouška doctoral examination
jazyková zkouška language examination
maturitní zkouška upper-secondary school leaving examination

A practice not commonly found in Czech bilingual specialized dictionaries, but frequently employed by foreign learner's dictionaries, is to provide collocations implicitly within usage examples. The advantage of such a procedure is that besides lexical syntagmatic information, the example can also illustrate some syntactic or pragmatic properties of the lemma. A "hybrid" solution is also possible, consisting in the mixing of collocations with usage examples in a single section of the dictionary article, as seen in [Kalina et al. 2001, 8]:

abeyance odklad; suspenze, pendance; nerozhodnutí, vyčkávání [...] *keep application in a. ponechat žádost nevyřízenou*
leave the matter in a. nechat věc nerozhodnutou
some laws have fallen into a. některé zákony přestaly platit
this matter is in a. tato záležitost je dosud nevyřízena

Whereas the first two items in italics can be regarded as collocations, the following two are clearly "live" usage examples, due to their structure as sentences (for the difference between collocations and usage examples see 4.6.7, although the distinction tends to be rather fuzzy). Such a solution can be quite successfully implemented in unreduced dictionaries to prevent the creation of two separate entry subsections, one for collocations, the other for examples.

The number of collocations to be included in the dictionary will ultimately depend on the intended dictionary type and function as well as the expected competence of the user. The different collocation needs with respect to different kinds of users as well as dictionary functions can be illustrated by a table adopted from [Bergenholtz and Tarp 1 1994, 123]:

The table indicates that the need for collocations is the greatest as far as the translation of both L1 and L2 texts is concerned. This applies to users across all levels of levels of subject field and language competence, with the exception of users proficient in both the subject field and the language, whose collocation needs will be reduced⁹. However, to expect a target group consisting entirely of experts in both areas is rather unrealistic; most probably, users of very varied knowledge of both areas will seek help from the dictionary.

Since an absolute majority of bilingual LSP dictionaries produced in the Czech Republic aim at serving the purposes of translation, the need for collocations will apply to all of these. Admittedly, there are minimal dictionaries (e.g. BALEKA, a sample dictionary of art) which only aim at passive use and openly confess to their micro- and macrostructural simplicity in the prefaces. However, the scope of use of these dictionaries will always be limited due to the absence of collocations.

The user research experiment presented in 3.4 has revealed that collocations are just as important in translating an English text into Czech as they are regarding the opposite direction. The wrong translations of the phrase *the bolt sheared* provided by the students indicated that although

⁹For a more detailed discussion of Table 4.2, see [Bergenholtz and Tarp 1 1994] and [Bergenholtz and Tarp 2 1994].

	User Type 1 low level of both encycl. and foreign- language competence	User Type 2. low level of encycl. and high level of foreign- language competence	User Type 3 high level of encycl. and low level of foreign- language competence	User Type 4 high level of both encycl. and foreign- language competence
Reception of L1	few	few	—	—
Production in L1	(many)	(many)	fewer	fewer
Translation L1-L2	(many)	many	many	fewer / many
Translation L2-L1	many	many	many	fewer/many
Reception of L2	few	few	few	— / few
Production in L2	(many)	(many)	many	fewer / many

Table 4.2: Collocation needs based on dictionary user and use.

the rough meaning of the phrase was understood (i.e. the purpose of reception was satisfied), a terminologically correct translation failed to be produced. Therefore, it would be wrong to assume that collocations are only important in Czech-English dictionaries as these are “active”, i.e. aimed at production. Collocations represent an information item essential for L1-L2 and L2-L1 dictionaries alike as long as they intend to provide the user with the means of not only producing but also translating LSP texts with confidence.

4.6.6 Paradigmatic and other semantic information

This umbrella category comprises a variety of information items including synonyms, antonyms, polysemous entries, homonyms¹⁰ and context markers as an instrument of meaning discrimination.

Synonyms and the treatment of polysemy

There are two kinds of synonyms presented in the microstructure – synonyms addressed to the lemma and those addressed to the equivalent. While the latter are found in almost every Czech LSP dictionary, the former are only indicated in some of them.

Providing information on synonyms related to the lemma is always a useful information item and the lexicographer should, space permitting, aim at its inclusion, regardless of dictionary type. Due to the low amount of variation in LSP text, such information will not be necessary for every lemma. Synonyms can be provided explicitly as a specially planned segment of the microstructure (in such instances they are either presented in a different font or introduced by means of the abbreviation SYN or a special symbol, e.g. “=”), or they can occur as cross-references to other lemmata. In addition, they can also appear as double lemmata.

An imaginary article from the projected dictionary of parrot-keeping will illustrate some of the options available. The lemmata are kept deliberately simple:

- (a) **hand-feeding** ruční dokrmování **hand-rearing**
- (b) **hand-feeding** SYN **hand-rearing** ruční dokrmování
- (c) **hand-feeding/hand-rearing** ruční dokrmování
- (d) **hand-feeding** *těž* **hand-rearing** ruční dokrmování
- (e) **hand-feeding** ruční dokrmování [...] = **hand-rearing**

¹⁰In dictionaries of English origin, homonyms are frequently referred to as “homographs”.

Obviously, these options are by no means exhaustive. Instead of *těž*, other synonymy markers can be used, e.g. “*also*” if English is selected as the language of indicators. For a dictionary utilizing Czech indicators, solution (d) appears especially appropriate, as it is entirely understandable and unambiguous. Using a Czech word as a synonymy marker is not a problem here, as most users will be Czech speakers. The advantage of the last solution (e) consists in its independence of language; the indicator used is a universally understandable symbol.

As regards synonyms addressed to the equivalent, i.e. all the target language terms placed after the first equivalent while possessing the same meaning, some very basic recommendations can be made. First of all, it should be made sure that the equivalent provided first is the most frequent one. If a frequency count is available, the task will become easier. Provided lexicographers have no such count at their disposal, they will have to select one based on their experience and knowledge of the LSP field in question. Secondly, it should be decided which graphical means will be used for the separation of the individual synonymous equivalents. The suggested means is the comma, leaving the semi-colon for the possible indication of polysemy (see below).

As shown in 3.3.4, polysemy does exist in specialized language, despite the “one-concept-one-term” ideal put forward by theoreticians. There are two basic solutions to dealing with polysemous terms. The first consists in numbering the individual senses, thus making them clearly stand apart. The second strategy is to separate the senses by the semi-colon, the synonymous lexemes being distinguished by the comma. The two possibilities of arranging the semantic information addressed to the equivalent can be illustrated on the above-presented entry *hatch* from the dictionary of parrot-keeping (here shortened or simplification):

hatch √[|/ɾ] vylíhnout se, vyklubat se; vysedět samice mladé

hatch √ 1 [j] vylíhnout se, vyklubat se 2 [ɾ] vysedět samice mladé

As can be seen, the second solution is more user-friendly, the individual senses being clearly distinguished from each other. In addition, it appears more suitable for a dictionary where a larger amount of grammar information is planned. The first one, in turn, appears more space-saving, especially where a larger number of senses are present, see 3.3.6. Either of the solutions adopted will have to be graphically coordinated with other information items, especially homonymy.

Homonyms

Whereas synonyms and the different senses of polysemous terms will always be presented within a single article, there are two approaches to treating **homonyms**, i.e. lexical items with the same form but different meanings. The first approach, adopted by e.g. *COBUILD* or the latest edition of *OALD*, consists in presenting all the items of an identical form within a single entry. Thus, in the latter, the entry *race* comprises both the meaning “competition” and “group of humans distinguished by their physical features” [Hornby 2000, 1041].

The other approach, favoured e.g. by *LDOCE*, keeps homonyms separate by treating them in different entries, marked by superscript (homonymy index). Although each solution has its merits, we, nevertheless, regard the latter as more suitable for the purposes of LSP lexicography. In addition to stressing the separate meanings of the terms, this approach will prevent the creation of entries that are too long and complicated. Moreover, where usage examples are included, each meaning will require different usage examples, and these are, again, best kept separate. Let us illustrate this solution using the term *contract* from the projected dictionary of parrot-keeping:

contract¹ n [C] smlouva

sign a contract of sale podepsat kupní smlouvu na papouška

contract² √[|/ɾ] stáhnout (se), zúžit (se)

muscles contract during digestion svaly se při trávení stahují

poor diet contracts the stomach chudá strava stahuje žaludek

When planning the presentation of homonyms, a word-class order should be established. In the above-stated example, the noun occurs before the verb. The next item (if one were available) might be an adjective, followed by an adverb, etc. The ordering should be consistent throughout the dictionary.

Having decided to treat homonyms separately and mark them with superscript to distinguish the individual meanings, a question arises how to present homographic **conversion pairs** (e.g. *a net* versus *to net*, *mould* versus *to mould*, etc.). Should a different indication strategy be used or should conversion pairs be presented in the same way as homonyms? Consulting some of the major ESL dictionaries, namely *LDOCE* and *MED*, we see that conversion pairs are presented in the same manner as homonyms [LDOCE 1994, 697]:

net¹ *n* 1 [C;U] a material of strings, wires, threads, etc. [...]
net² *v* -tt- [T] 1 to catch (as if) in a net [...]
net³ also **nett** *BrE adj* [A; after *n*] (of an amount) when nothing further is to be subtracted [...]

The advantage of the identical presentation of homonyms and conversion pairs consists in its user-friendliness: an average user without linguistic background is not very likely to distinguish between the two phenomena; the important thing is that the individual meanings are clearly kept apart.

Antonyms

Antonyms do not represent an information item commonly found in Czech bilingual specialized dictionaries. This is understandable, as limits need to be set to how much information a dictionary article can absorb. Furthermore, it is obvious that indicating gradable antonyms such as *light x dark*, *healthy x sick*, etc. would be a sheer luxury in a LSP dictionary.

However, some of the field-specific complementary antonyms (*cock x hen*, *open band x closed band*, *seed-eater x fruit eater*, etc.) and converse antonyms (*predator x prey*, etc.) may be considered worth indicating in the dictionary. This can be done in several ways; for instance, [Nielsen 1994, 279-281] suggests introducing antonymy as a distinct information item in the dictionary entry and presenting it with its own symbol, “≠”. The use of the symbol is advantageous in that it is universally understandable and language-independent, as also argued in Appendix A.

In dictionaries with a reduced amount of linguistic information, antonymy may be easily dealt with using the existing mediostuctural apparatus, namely cross- references. The lemma is simply cross-referenced to its antonym:

open band otevřený kroužek [...] *srov.* **closed band**

The number of antonyms thus indicated need not be staggeringly high; it is sufficient to cover the most relevant antonymous pairs in the given LSP field. In minimal glossary-like dictionaries, the provision of antonyms remains unlikely.

Context markers as a tool of meaning discrimination

The treatment of dictionary semantics would not be complete without some brief coverage of a very powerful means of meaning discrimination in the form of contextual pragmatic notes, also called “context markers”. These represent a subtype of a broader category of *explanatory notes*, short texts (usually given in brackets) providing additional encyclopaedic or context-related information on the equivalent.

Context markers have been studied and promoted by Dutch linguist Geart van der Meer, who has observed in reaction to over-complicated entries produced from the lexicographer's, not user's perspective:

“Quite frequently senses, and hence translations, are context-sensitive. . . Speakers are able to analyse meanings and contexts in ways which are quite subtle, but which are in essence *non-theoretical* and hence *non-terminology driven*. I suggest that lexicographers should exploit this fact by using context (both linguistic and non-linguistic) in a much more concrete and less theoretical way, by not distinguishing contextualized meanings by means of *first* providing abstract grammatical codes but by giving exclusively concrete contexts, that is *words*” [van der Meer 1998, 221-223].

Thus, when dealing with a lemma whose meaning needs to be specified or whose different senses need to be distinguished, a recommendable way of doing so is by specifying context, either a linguistic one or a more general one, resembling, to some extent, field labels. As an illustration, let us consider the following entries from [Merta and Mertová 1994]:

abandon přerušit (chod programu), opustit

ascending vzestupný (číslování)

lacuna lakuna, mezera (v knižním fondu), chybějící svazky čísla (časopisu)

As can be seen, context markers are efficient in specifying meaning without occupying too much space in the article. The nature of information they convey can be quite varied, sometimes bordering on the encyclopaedic. Since the distinction between context markers and encyclopaedic notes is rather fuzzy, their specification needing further metalexigraphic research, they are both subsumed under the – admittedly – artificial umbrella category of explanatory notes (see the section on encyclopaedic information below).

Due to their importance for meaning discrimination, context markers can be recommended for dictionaries of all types, as guiding the user to the correct equivalent is the primary function of any dictionary, regardless of its complexity.

4.6.7 Usage examples

Usage examples represent a linguistic information item that can help convey implicit information on the morphological, syntactic, pragmatic and, possibly, encyclopaedic properties of a lemma. They have a much broader scope than collocations, which primarily convey lexical syntagmatic information and are simpler in structure (although the two information items can overlap to some degree). Most often, usage examples will have the form of complete sentences, even though they can be presented as phrases as well. Due to space concerns or limited linguistic background of the dictionary compilers, they are only rarely included in Czech bilingual specialized dictionaries.

Usage examples are of three basic types:

- **Citations**, involving unedited sentences from LSP texts, with or without reference to the source.
- **Citation examples**, consisting of edited sentences from LSP texts.
- **Competence examples**, sentences entirely made up by the lexicographer to illustrate a certain linguistic problem.

The analysis has shown that out of the three types, competence examples prevail in Czech bilingual LSP dictionaries. This is due to the fact that they are easy to construct, while finding an appropriate citation may be very time-consuming. Although competence examples have been criticized by theoreticians for being rather artificial, their use is entirely justified in that they are

condensed and take much less space than citations would (for some examples from the sample, see 3.3.4).

Usage examples are an integral part of foreign learner's dictionaries. Analogically, they can be recommended for inclusion in Czech LSP dictionaries where viable, the reason being their helpfulness regarding production in and translation into L2, as seen in this example from the projected dictionary of parrot-keeping:

přilnout ke komu bond /bɔnd/ v [I/T] ~ with/to sb
mládě přilne k člověku a baby bird will bond to a human
pár k sobě přilnul the pair have bonded
žakové obvykle přilnou k jednomu členu rodiny Greys tend to bond with one family member

In simpler dictionaries, where space-saving may be a concern or where the author is a field specialist rather than a linguist, the inclusion of usage examples may prove beyond the means of the project. In such instances, care should be taken to present the relevant information explicitly within the other information items included, i.e. morphological information, valency, collocations, explanatory notes, etc. In minimal glossary-like dictionaries, the provision of usage examples cannot be expected due to their microstructural simplicity.

4.7 Microstructure: encyclopaedic information

Encyclopaedic information serves two main purposes in the specialized dictionary. The first and most important one is meaning discrimination, achieved by means of two information items – encyclopaedic (field) labels and encyclopaedic notes. The other purpose is providing additional information on the LSP subject in question. A dictionary containing such additional material (in the form of notes, definitions, citations from LSP literature or a front-matter encyclopaedic section etc.) becomes a hybrid between a pure dictionary and an encyclopaedia, in other words it becomes the all-inclusive dictionary (*Allbuch*) promoted by Wiegand.

While the latter purpose can be regarded as largely optional and viable in very ambitious dictionary projects only, the first one is indispensable, especially in multi-field or culture-dependent dictionaries of all types. In the former, field labels are necessary to guide the user to the correct equivalent, as polysemy is rife where multiple fields are treated [Bažant et al. 1 1992, 871]:

stem peň, kmen; dřík [...] držák (*duantu*) *jad.*; vrtná tyč *horn.*; přední vaz *lod.*; odstopkovati (*ovoce*); odzrňovati (*hrozny*); ucpávati (*vrt*) *horn.*¹¹

Where there is no polysemy, a field label simply indicates which field or subfield the term in question is part of¹².

In culture-dependent dictionaries, in turn, it is encyclopaedic explanatory notes that gain importance, as some L2 concepts may not be familiar to L1 speakers. The greatest need for these notes seems to occur in dictionaries of law, especially where they cover different legal systems [Chromá 1995, 189]:

lord [...] L~s **Temporal** *brit.* svěštěí lordi lordi Sněmovny lordů, kteří svůj titul dědí nebo jim je udělen po dobu jejich života

Here, the encyclopaedic note is a necessary element of the entry, as the term *Lords Temporal* is unique to a British law-making institution and will not, in all probability, be familiar to Czech

¹¹Note how this dictionary fails to clearly distinguish between individual word classes within a single entry.

¹²Here, the field labels can be said to have a pragmatic as well as encyclopaedic function. The fuzziness of the two functions is, simply, unavoidable as far as LSP dictionaries are concerned.

users. However, encyclopaedic labels may not only be limited to culture-dependent terms, but can also accompany terms which are lesser-known or potentially difficult to understand, e.g. due to their foreign origin [Průcha 2005, 61]:

piktogram (*pojem vyjádřený schematickým obrázkem*) pictogram

Any encyclopaedic information items that do not serve meaning discrimination as shown above are to be regarded as optional or additional, recommended for inclusion if space permits or if a new and largely unmapped terminology is being covered. For examples of such additional encyclopaedic information see 3.3.4.

4.8 Cross-reference structure

The cross-reference structure can be defined as a network of cross-references enabling users to locate data spread across the dictionary [Hartmann and James 2001, 32]. There are many types of cross-references, and very little literature exists that would provide their systematic description.

The importance of cross-references consists in their ability to link related items that are separated by the alphabetical macrostructure. They also possess a space-saving function in that, for instance, spelling variants or morphologically irregular forms do not have to be provided with full lexicographic description, but can simply be referred to the base lemma. The important thing to avoid in cross-referring is circularity, i.e. referring the user from A to B and then from B back to A.

Cross-references are divided into **dictionary-external**, referring users to sources outside the dictionary (e.g. international standards, technical norms, etc.), and **dictionary-internal**, referring to information elsewhere in the dictionary [Bergenholtz and Tarp 1 1994, 217]. Dictionary-internal cross-references can further be subdivided into **component-internal**, linking items within a single dictionary component, and **component-external**, referring to information found in a different dictionary component. Component-internal cross-references, again, can be divided into **article-internal**, linking information within one article (such cross-references are especially present in dictionaries with long entries or in articles treating polysemous lemmata), and **article-external**, usually word-list internal, cross-references referring from one lemma in the word list to another.

When planning a dictionary's cross-reference structure, the compiler has three basic options at his/her disposal:

1. **To use Czech indicators.** The most obvious choice will be *viz* to signify an important cross-reference, with some additional ones (*viz též*, *srov.*, etc) to indicate less important cross-references.
2. **To use foreign indicators.** In a dictionary of English, the analogous cross-reference markers will be *see*, *see also* and *compare/cf.*
3. **To use symbols.** As mentioned in the section on lexical paradigmatic information, the use of symbol is advantageous in that it is independent of language. For more important links, the symbol \Rightarrow can be used. For additional ones, it is possible to utilize the simple \rightarrow . Alternatively, only one symbol can be used for all cross-references; most probably, it will be \rightarrow .

An important consideration is consistency – once the indicator is selected, it must be used throughout the dictionary. In addition, Czech, foreign and symbolic indicators should not be mixed, i.e. *viz též* should only be used in combination with *viz*, not, for instance, *cf.*

A question arises whether any of these individual options can be recommended for any specific dictionary types. The choice will always depend on the character of other indicators selected, especially linguistic ones. If a dictionary presents its linguistic information by means of foreign

(in our case English) indicators, then it is logical to use foreign cross-reference markers as well, to maintain consistence. An elegant alternative is to combine the use of foreign linguistic indicators with the use of symbol-based cross references (this solution was applied in the projected dictionary of parrot-keeping), especially if lexical paradigmatic information is indicated using symbols as well, see 4.6.6. Where Czech indicators are utilized, Czech cross-reference markers are recommended, provided symbols are not used. The advantage of the Czech markers is their absolute understandability to Czech users.

Whatever the solution adopted, the fact remains that the cross-reference structure constitutes an essential element of any dictionary. Dictionaries without cross-references remain directories of isolated terms which fail to make the users aware of the relations among the items of the given terminology.

4.8.1 Access structure

Having provided recommendations for the individual dictionary components and structures, brief attention should also be paid to the typographical devices that guide users to the desired lemma (so-called **outer access structure**) and those that direct them to the required information inside the article (**inner access structure**). Only a few basic suggestions will be made, as specialized lexicography deals with typographical problems similar to those employed by general lexicography.

As far as the outer access structure is concerned, one special device that speeds up access to lemmata deserves mention, that of **running heads**. A running head is a word (a part of word, a multi-word term) placed at the top of each page to facilitate the lookup of the required lemma. As a rule, the top left corner of the left page indicates the first lemma and the top right corner of the right page shows the last lemma on the page. Another outer access element, the **thumb index**, is not likely to be used by Czech specialized dictionaries, as thumb indices are worth providing in large dictionaries only.

An important consideration involving outer access structure, however, is how to make the lemma prominent enough on the page for the user to reach it as quickly as possible. The standard practice in Czech specialized dictionaries to present lemmata in bold print; sometimes the effect is enhanced by making them protruded in relation to the left column margin.

Although bold and possibly protruded, the lemma in Czech LSP dictionaries is most often presented in print of the same size as the rest of the article. This may be due to the fact that the articles tend to be rather short and devoid of much else besides the lemma and the equivalents (an exception being represented by niched and nested articles that employ listing; these can be rather long). In most ESL dictionaries, however, we find the lemmata presented in larger print than the rest of the microstructural information. This attention-attracting device, unusual as it is for Czech dictionary practice, can be recommended for the production of dictionaries containing more complex articles with a greater variety of information, as seen in the following example from the dictionary of parrot-keeping:

damage¹ /'dæmɪdʒ/ n [U] ~to st škoda na čem, poškození čeho
cause damage to the bird's organs způsobit poškození orgánů ptáka
damage to wooden furniture škoda na dřevěném nábytku
fatty diet results in liver damage tučná strava poškozuje játra

As far as simpler dictionaries are concerned, using larger print for lemmata is not so advantageous.

The **inner access structure** uses various typographical devices to indicate the different fields within the article as clearly as possible. Two contradicting factors are at play here. On the one hand, each indicator should have as few functions as possible; on the other hand, the user should not be overwhelmed with an excessive number of different indicators. Naturally, dictionaries with rich microstructures will have to provide a greater variety of indicators (oblique slashes, square brackets, small print for encyclopaedic notes, different font for grammar indicators, symbols to indicate synonyms, antonyms or the collocation/example section, etc.) than more reduced

dictionary types. Yet even in less complex dictionaries, a number of various indicators can be expected (meaning-discriminating numbers, italics to indicate linguistic labels, the comma to separate synonymous equivalents, etc).

When scanning the dictionary entry, the user is most likely to be interested in the **equivalent** of the lemma. Therefore, a number of foreign LSP dictionaries attempt to give the equivalent some prominence by various typographical means, the most frequent being bold print or the position on a new line. The problem with the former is that there are frequently multiple equivalents for the lemma, which could lead to the overuse of the bold print in the article; in such an instance, the bold print loses its purpose. The latter solution, in turn, is not very space-saving. Therefore, presenting equivalents in plain print will often be the most practical strategy.

Where niched or nested articles are used or where collocations/usage examples are included, the lexicographer needs to decide how to represent the main lemma. There are three basic options:

- to represent the lemma in full
- to represent the lemma by its first letter
- to use a repetition symbol, the most frequent one being the tilde (~)

The first option is the least space saving; therefore, we only rarely find it in Czech LSP dictionaries. The other two solutions are more frequent, especially the use of the tilde, which is to be found in an absolute majority of niched and nested dictionaries of Czech origin. However, while the use of abbreviations or repetition symbols is without problems for English, it can present difficulties as far as Czech is concerned, due to its inflectional character. Let us consider the following three simplified entries:

veterinář veterinarian n[C]
obrátit se na veterináře consult a vet

veterinář veterinarian n[C]
obrátit se na v.-e consult a vet

veterinář veterinarian n[C]
obrátit se na ~e consult a vet

It can be seen that neither of the abbreviated solutions appears ideal where the lemma is presented in its inflected form. In contrast, the full repetition of the lemma poses no problem, while it is also user-friendlier. Therefore, in Czech-English dictionaries where a larger number of inflected forms are included, the full representation of the head lemma in sublemmata and collocations/examples can be recommended. In English-Czech dictionaries or in minimal dictionaries with few occurrences of inflected lemmata, abbreviated lemmata or repetition symbols can be used.

4.8.2 Page format

The decisions involving page format in LSP dictionaries do not greatly differ from those concerning LGP dictionaries. There are usually two columns of articles to each page, an arrangement with an obvious space-saving function (see Appendix A). Some dictionaries choose to separate the two columns by a vertical line, some only leave space in between. Besides the articles themselves, the other commonly provided information on the page includes running heads (see above) and page numbers. Naturally, the more “unreduced” the dictionary, the greater the potential tendency to provide some additional information on the sides or at the bottom of the pages, such as pronunciation symbols (as seen in *OALD*), grammar codes (as used by *COBUILD*), symbols indicating the sections in the articles, etc.

As remarked by [Bergenholtz and Tarp 1 1994, 225], not all dictionaries good in terms of contents always show corresponding quality layout: “Even in the case of dictionaries from seasoned

dictionary publishers, experience shows that the typography of many specialized dictionaries of superior lexicographical quality is so untidy, or the typeface so small, that readability is impeded". As the decisions involving the planning of the layout can be quite complex, we state only some of the possible shortcomings:

- There is not enough space between the columns.
- There is too much white (unused) space on the page.
- There is a reluctance to divide words at the end of the line, resulting in an excessive distance between the elements of the multi-word terms.
- Too much bold or semi-bold print is used in the articles, making the head lemma difficult to locate.
- Unsuitable font is chosen (one which is difficult to read or in which the characters take up too much space).

Naturally, the layout of unreduced dictionaries will require a greater deal of typographical thought than that of reduced or minimal dictionaries as it will much more closely resemble the format of the great ESL dictionaries. The general approach to be adopted always represents a combination of economy and user-friendliness. For more information on LSP dictionary layout see [Bergenholtz and Tarp 1 1994, 224-231].

4.9 Proposed models for the production of Czech bilingual specialized dictionaries

To proceed from general guidelines to more specific recommendations regarding dictionary design, the present section will introduce a typology of three suggested dictionary models, each representing a "prototype" suited for a specific situation of the compiler as well as user. The three-level description of dictionary design is intended to aid dictionary authors of various linguistic/LSP backgrounds working on projects involving different resources and limitations. Equally, the individual levels take into account the differing needs and expectations of users, in acknowledgement of the fact that the linguistic as well as LSP competence of individual user groups can vary greatly.

Allowing for some degree of simplification, the three dictionary models can be postulated as follows:

the unreduced dictionary A dictionary type resembling the well-established ESL dictionaries in complexity and the scope of linguistic information offered, additionally also presenting encyclopaedic information to fulfill its specialized purpose. A user with at least intermediate level of L2 and some experience of working with ESL dictionaries is presupposed. Besides reception, this type is highly suitable for the functions of production and translation due to the wealth of explicit and implicit information provided. The complexity of the dictionary requires an author/a member of the lexicographic team with training in linguistics.

the reduced dictionary A type offering a reduced amount of linguistic and encyclopaedic information; the former confined to some explicitly stated categories, the latter mainly used for the purposes of meaning specification. The lower information cost due to greater simplicity ensures quick access to equivalents. The dictionary is suitable for users with more limited L2 background and reduced experience of working with ESL dictionaries. Provided equivalence is handled well, this type is sufficient for the purposes of reception; the suitability for production and translation is limited. The model appears preferable where the author is a field expert possessing a practical knowledge of L2, yet without a great deal of formal training in linguistics.

the minimal dictionary Not to be confused with the “minimizing dictionary” (a category related to the number of lemmata treated), the minimal dictionary represents the most curtailed type, recommendable only in projects with severely limited resources (human or material) or a with a very small market. The amount of linguistic and encyclopaedic information is kept to a bare minimum, the main emphasis is on the correct presentation of the equivalents of LSP terms. The dictionary is very easy to use; however, the user-friendliness is only apparent, as this type cannot fulfill more than the passive function. The expected author is a field expert with no training in linguistics.

It needs to be remembered that this working typology is only rough and that all the three dictionary types move on a scale. Purely unreduced dictionaries are very difficult to find, the prevailing dictionary type on the Czech market appearing to be a mixture of the minimal and reduced type. A few dictionaries of humanities (e.g. COLLIN, CHROMÁ, etc.) contain elements of the unreduced dictionary, yet none coming close to the major ESL dictionaries in the scope of the information treated. A degree of blending of the suggested prototypes must, therefore, be expected in practice.

Having introduced the individual dictionary types, we shall now attempt to present their descriptions in terms of both linguistics and non-linguistic information. Two models will be presented for each dictionary type; one for the passive (decoding) direction and one for the active (encoding) direction¹³. The function of translation from and into L2 is subsumed under both functions, although it has been stated earlier that minimal and, to some extent, reduced dictionaries can only be of limited usefulness as far as translation is concerned.

As suggested in 4.4, the three dictionary types only represent ideal constructs; in reality, a great deal of blending between them can be anticipated. Moreover, the inclusion of the minimal dictionary, which we do not consider to be a user-friendly reference work, has been motivated by our attempt to be as descriptive as possible, knowing that the conditions and resources of some real Czech lexicographical projects can be very limited indeed. However, even a minimal dictionary can show some consistence in presenting a certain minimum of linguistic and non-linguistic information, thus being user-friendlier than most of the minimal dictionaries we find on the Czech market nowadays.

4.9.1 The unreduced dictionary

L2-L1 (Eng-Cz) direction

1. Information on spelling addressed to the lemma: general variation in spelling, regional variation, specific spelling features.
2. Pronunciation addressed to the lemma; preferably using the IPA.
3. Labelling, primarily of the lemma, but possibly also of the equivalent in the case of stylistically marked equivalents or multiple equivalents from various LSP areas. Recommended basic types of labels: diatechnical (field labels), diatopical (regional), diastratic (to indicate slang expressions), diaphatic (to mark formality), diafrequent (to indicate rare usage where present). Other label types depending on the character of the terminology in question.
4. Morphological information, addressed to the lemma: word class, irregular forms of nouns and verbs, countability in nouns, number in nouns where appropriate, determination in nouns in specific instances.
5. Syntactic information, addressed to the lemma: valency (formal marking of transitivity + information on prepositional or clausal patterns).
6. Lexical paradigmatic information addressed to the lemma: synonyms, antonyms.

¹³The grammatical information items proposed are valid for English; different items can be expected in dictionaries of other foreign languages with the envisaged user being a Czech native speaker.

7. Contextual pragmatic information addressed to the lemma and/or the equivalent: context markers to provide meaning discrimination.
8. Encyclopaedic information: encyclopaedic notes addressed to the equivalent to specify meaning and, optionally, addressed to the lemma to give additional information on the term.
9. Lexical syntagmatic information: collocations, as a separate information item or subsumed under usage examples.
10. Usage examples to provide implicit grammatical, lexical syntagmatic, contextual pragmatic and encyclopaedic information.

L1-L2 (Cz-Eng) direction

1. Information on spelling addressed to the equivalent: general variation in spelling, regional variation, specific spelling features.
2. Pronunciation addressed to the equivalent; preferably using the IPA.
3. Labelling, primarily of the lemma, but possibly also of the equivalent in case of stylistically marked equivalents or multiple equivalents from various LSP areas. Recommended basic types of labels: diatechnical (field labels), diatopical (regional), diastatic (to indicate slang expressions), diaphatic (to mark formality), diafrequent (to indicate rare usage where present). Other label types depending on the character of the terminology in question.
4. Morphological information addressed to the equivalent: word class, irregular forms of nouns and verbs, countability in nouns, number in nouns where appropriate, determination in nouns in specific instances.
5. Syntactic information addressed to the equivalent: valency (formal marking of transitivity + information of prepositional or clausal patterns).
6. Lexical paradigmatic information addressed to the lemma and/or equivalents: synonyms, antonyms.
7. Contextual pragmatic information, addressed to the lemma and/or the equivalent: context markers to provide meaning discrimination.
8. Encyclopaedic information: encyclopaedic notes addressed to the lemmata and/or the equivalents to specify meaning and, optionally, to give additional information.
9. Lexical syntagmatic information: collocations, as a separate item or subsumed under usage examples.
10. Usage examples to provide implicit grammatical, lexical syntagmatic, contextual pragmatic and encyclopaedic information.

Comparing the two models, it may appear that the decoding direction contains information not immediately relevant for the purposes of L2 reception (e.g. valency, countability or usage examples); these items seem more useful for production in L2. However, we believe that a modern unreduced LSP dictionary, to resemble its ESL counterparts, should inform the user on the linguistic and encyclopaedic properties of the term in question, especially where the L1-L2 direction of the dictionary is not available. In addition, as we stated that the L2-L1 dictionary should serve the purposes of translation as well as reception, additional information is required of the dictionary to guide the user to the precise delivery of the translation.

4.9.2 The reduced dictionary

L2-L1 (Eng-Cz) direction

1. Information on spelling, addressed to the lemma: general variation in spelling, regional variation, specific spelling features
2. Pronunciation (optional, though preferable), addressed to the lemma; using the IPA or a czechisized version
3. Labelling of the lemma and/or the equivalent (in stylistically marked equivalents). Recommended types of labels: diatechnical (field labels), diatopical (regional), diastratic (to indicate slang expressions) and diaphatic (to mark formality).
4. Morphological information, addressed to the lemma: word class in specific instances (e.g. conversion pairs), irregular forms of nouns and verbs, countability in nouns in specific instances, number in nouns with lemmata occurring in the plural.
5. Syntactic information, addressed to the lemma: valency (indication of verb patterns using simplified valency formulae).
6. Lexical paradigmatic information, addressed to the lemma: synonyms (indicated explicitly); optionally antonyms indicated by means of cross-references.
7. Contextual pragmatic information, addressed to the lemma and/or the equivalent: context markers to provide meaning specification.
8. Encyclopaedic information to specify meaning: encyclopaedic notes addressed to equivalents.
9. Lexical syntagmatic information: highly specific collocations.

L1-L2 (Cz-Eng) direction

1. Information on spelling, addressed to the equivalent: general variation in spelling, regional variation, specific spelling features.
2. Pronunciation (optional, though preferable), addressed to the equivalent; using the IPA or a czechisized version.
3. Labelling of the lemma and/or the equivalent (in stylistically marked equivalents). Recommended types of labels: diatechnical (field labels), diatopical (regional), diastratic (to indicate slang expressions) and diaphatic (to mark formality).
4. Morphological information, addressed to the equivalent: word class in specific instances (e.g. conversion pairs), irregular forms of nouns and verbs, countability in nouns in specific instances, number in nouns with lemmata occurring in the plural.
5. Syntactic information, addressed to the equivalent: valency (indication of verb patterns using simplified valency formulae).
6. Lexical paradigmatic information, addressed to the lemma: synonyms (stated explicitly).
7. Contextual pragmatic information, addressed to the lemma and/or the equivalent: context markers to provide meaning specification.
8. Encyclopaedic information to specify meaning: encyclopaedic notes addressed to lemmata.
9. Lexical syntagmatic information: highly specific collocations.

In these two models, we find the amount of linguistic information reduced. Most noticeably, usage examples are missing here, as they occupy a considerable amount of space in a dictionary and require the authorship of a trained linguist. However, in order for the dictionary to be of at least some usefulness to translation from and into the foreign language, the inclusion of intransparent collocations that could cause difficulties to the semi-expert or non-expert user should be given up in neither the decoding nor the encoding direction.

Pronunciation is still advisable, especially if the dictionary covers a new or a highly specialized LSP area. The use of labels is also recommended; especially of diatechnical, diatopical, diastratic and diaphatic labels. Other label types are optional, depending on the character of the terminology in question.

Grammar information is presented in a reduced form as well. The recommended morphological items include irregular forms of verbs, nouns as well as adjectives, and the indication of number in lemmata occurring in the plural. The information on word class and countability can be optionally provided in some specific instances which could leave the user confused; the choice of indicators in the case of countability will depend on the language of description of the linguistic information. Syntactic information (valency) is still regarded as important, though it can be presented in other ways than the formal categories of transitivity. Short valency formulae (see the example entries below) can be used, optionally complete with some exemplification contained in the collocations.

The encyclopaedic information in a reduced dictionary should primarily serve meaning specification. The function of encyclopaedic notes is to specify the meanings of culture-dependent or little known terms; this is important for both the purposes of L2 reception and the translation from or into L2.

4.9.3 The minimal dictionary

L2-L1 (Eng-Cz) direction

1. Information on spelling, addressed to the lemma: general variation in spelling, regional variation.
2. Labelling: field labels, diatopical (regional) labels in lemmata, labelling of informal and slang terms if included.
3. Morphological information addressed to the lemma: irregular forms (especially foreign plurals), number in lemmata occurring in the plural.
4. Syntactic information, addressed to the lemma: indication of prepositional patterns in specific verbs and nouns.
5. Lexical paradigmatic information, addressed to the lemma: synonyms¹⁴.
6. Contextual pragmatic information, addressed to the lemma and/or the equivalent: context markers to provide meaning specification.
7. Encyclopaedic information to specify meaning: short encyclopaedic notes to specify the meanings of problematic terms.

L1-L2 (Cz-Eng) direction

1. Information on spelling, addressed to the equivalent: variation in spelling, regional variation.
2. Labelling: field labels, diatopical (regional) labels in equivalents, labelling of informal or slang terms if included.

¹⁴In reality, however, the last three information items can only be expected in de-luxe minimal dictionaries, despite their helpfulness to the user.

3. Morphological information, addressed to the equivalent: irregular forms (especially foreign plurals), number in lemmata occurring in the plural.
4. Syntactic information, addressed to the equivalent: indication of prepositional patterns in specific verbs and nouns.
5. Lexical paradigmatic information addressed to the lemma: synonyms.
6. Contextual pragmatic information addressed to the lemma and/or the equivalent: context markers to provide meaning specification.
7. Encyclopaedic information to provide meaning specification: short encyclopaedic notes to specify the meanings of problematic terms.

As can be seen from the model, the amount of linguistic information in a minimal dictionary is reduced to a necessary minimum. However, this does not mean that the terms should be stripped of any information whatsoever. We believe that even a minimal dictionary should provide at least the most basic labels, the irregular forms of verbs and nouns (particularly as far as irregular plurals of loan terms are concerned) and the indication of number in terms occurring in the plural. In addition, stating prepositions with specific nouns and verbs is a user-friendly procedure that does not claim too much space nor specialist linguistic expertise.

Although the minimal LSP dictionary is greatly reduced as far as linguistic information is concerned, it ought not give up on its meaning-specifying role. In other words, it should be able to guide the user to the correct equivalent by means of such devices as field labels, context markers or brief encyclopaedic notes where necessary. Care should be taken to include all the relevant terms and provide them with correct equivalents, clearly discriminated in cases of polysemy.

4.9.4 Example entries for the L2-L1 (Eng-Cz) direction:

The unreduced dictionary

clutch /klatʃ/ n[C] 1 snůška vajec 2 hnízdo vylíhlých mláďat = brood
remove a clutch of pinfeather babies from the box odebrat hnízdo nedopeřených mláďat z budky
the hen laid a clutch of in/fertile eggs samice snesla snůšku ne/oplozených vajec
the number of eggs per clutch varies depending on species počet vajec na snůšku se liší v závislosti na druhu
the regular clutch size is 4-6 eggs běžná velikost snůšky je 4-6 vajec

The reduced dictionary

clutch /klač/ 1 snůška vajec 2 mláďata z jedné snůšky = brood
a clutch of pinfeather babies hnízdo nedopeřených mláďat
lay a clutch of in/fertile eggs snést snůšku ne/oplozených vajec
the number of eggs per clutch počet vajec na snůšku

The minimal dictionary

clutch 1 snůška vajec 2 hnízdo vylíhlých mláďat = brood

4.9.5 Example entries for the L1-L2 (Cz-Eng) direction:

The unreduced dictionary

pářit se mate /meit/ v [I] ~with sb, copulate /kopjuleit/ v [I] ~with sb *fml*
ptáci se páří a snášejí vejce the birds mate and lay eggs
samečkové alexandři se páří s několika samičkami Alexandrine cocks copulate with several hens

The reduced dictionary

pářit se mate /meit/ v (with sb), copulate /'kopjuleit/ (with sb) *fml*
pářit se se samečkem/samičkou mate/copulate with a cock/hen

The minimal dictionary

pářit se mate (with), copulate (with) *fml*

Naturally, it is difficult to find a single lemma which would contain *all* the information items stated in the models. Therefore, the above-stated articles only offer very rough illustration. More detailed exemplification is provided in A in the form of a model unreduced dictionary of parrot-keeping.

As already indicated, the three suggested dictionary models do not aim at being prescriptive; instead, they provide suggestions for the inclusion of linguistic and non-linguistic information based on three prototypical dictionary projects. The amount of the individual information items will always vary depending on the nature of the given terminology, on the character of the foreign language covered, on the linguistic and encyclopaedic competence of the authors and the intended users as well as on some external restrictions of the lexicographical project.

Chapter 5

Conclusion

The thesis represents a contribution to the theory and practice of specialized lexicography applied to the unmapped territory of Czech LSP dictionaries. The main objective is to develop a methodology for the preparation of Czech bilingual specialized dictionaries utilizing the principles laid down by pedagogical lexicography, especially as presented in the leading ESL dictionaries. The user-oriented approach is adopted in the methodology, with special attention paid to the needs of Czech-speaking users. A specialized dictionary is introduced here as a utility product reflecting a specific user situation and prepared with respect to its intended function (reception, translation, production).

The adoption of the user-oriented approach is shown to have an impact on the extent and presentation of several major information categories: grammatical, semantic, pragmatic and encyclopaedic, and, in addition, on the key dictionary structures (microstructure, macrostructure and cross-reference structure). It is demonstrated that a good-quality specialized dictionary is not merely a work of terminology; considerable lexicographic expertise is equally required to meet the true user needs. To suit the resources of a wide variety of lexicographic projects in the Czech Republic, multiple solutions to dictionary design are proposed.

The opening theoretical chapter discusses the results of LSP lexicography research abroad (2.1), especially the conclusions reached by the Aarhus authors, whose innovative concepts (minimizing versus maximizing dictionary, communicative function of a dictionary and lexicographical information cost) have been adopted by the present research. The state of LSP lexicography in the leading European countries having been introduced, attention is then focused on the situation in the Czech Republic. Despite some solitary attempts by Czech linguists to deal with some basic issues of the discipline, the overall state of Czech specialized lexicography is found to suffer from visible neglect. Apart from a marked lack of theoretical contributions reflecting the recent trends in lexicographical research abroad, there is a painful shortage of publications of a more practical character which would serve as guidelines for Czech specialized dictionary authors. A need is expressed to redress the imbalance between the sparse literature on Czech LSP lexicography and the ever-increasing number of LSP dictionaries appearing on the Czech market.

An important part of the opening chapter consists in a discussion of the terms “specialized lexicography”, “terminological lexicography” and “terminography” (2.2). A conclusion is drawn that the most suitable term to refer to the preparation of bilingual specialized dictionaries is “specialized lexicography”. This is due to the fact that presenting the terminology of a given field is not the sole task of a LSP dictionary author; in addition, linguistic competence is required to equip the individual terms with adequate grammatical and encyclopaedic information to fulfill the dictionary’s true purpose. The principles applied in the presentation of this information are to a great extent shared with the principles found in general-purpose lexicography. In addition, as regards *bilingual* LSP dictionaries, the lexicographer is shown to be predominantly concerned with stating target-language equivalents for already established source-language terms rather than with creating a new terminology to describe a given conceptual field.

Therefore, the term “terminography” is found too limiting in its scope as far as bilingual

specialized dictionaries are concerned, while the the term “terminological lexicography” is not to be recommended since it originated as a compromise solution that has never truly been adopted by prominent lexicographers. The term “specialized lexicography” is believed to best describe the essence of the compilation of dictionaries covering various fields of humanities and sciences; moreover, it is very similar to the long-established German term “Fachlexikographie”.

The input of terminology in LSP lexicography, however, remains very significant, as is demonstrated in the following section of the introductory chapter, where the basic principles of terminology work are introduced, especially as regards the naming of concepts and standardization of terms (2.3.1). LSP terms are shown to be in an absolute majority in specialized dictionaries; nevertheless, it is also argued that many of these dictionaries contain a percentage of general-language terms. A crucial distinction, based on Wiegand, between “LSP terms” (*Fachtermini*), “non-LSP terms” (*Nicht-Fachtermini*) and “doubtful cases” (*Zweifelsfälle*) is made. The boundary between the three categories is shown to be fuzzy.

The remaining part of the opening chapter is dedicated to defining some major concepts and procedures in specialized lexicography. A great emphasis is placed on the preliminary part of a lexicographical project, where the dictionary’s function(s) and target users are determined. The user typology is demonstrated to depend on two main factors – LSP competence (resulting in the users’ division into experts, semi-experts and non-experts) and language competence (distinguishing between users with a high, intermediate or low level of second-language competence). As regards dictionary functions, the well-known distinction between language reception, production and translation is provided, with implications being made for the inclusion of specific dictionary information items. The chapter concludes with the presentation of the chief LSP dictionary components and structures.

The following part of the thesis consists in a detailed analysis of a sample of 25 Czech bilingual dictionaries, with the aim to determine the features of lexicographical practice in the Czech Republic as far as specialized dictionaries are concerned. The first conclusions to be drawn from the analysis concern the general character Czech bilingual dictionaries (2.3.1). Their production is stated to be subject to a series of limitations dictated by the situation on the Czech market. As Czech belongs among so-called “small languages” (i.e. languages with a limited spread), the market for any Czech bilingual dictionary of a specialized field will logically be considerably smaller than that for the more widespread languages; most often, it will be constrained to Czech experts or semi-experts in the given discipline.

While the dictionaries of some popular fields (especially law and business) can expect to find a wider spectrum of users, the dictionaries of other more technical fields cannot hope to sell in particularly high numbers. Therefore, these highly specialized lexicographical projects tend to be rather modest in terms of article structure and the presentation of linguistic and encyclopaedic information.

The limited Czech market can further be seen to have an impact on the size of Czech bilingual dictionaries. The majority of the dictionaries found in the sample are minimizing, i.e. providing only the core vocabulary of the LSP area. Naturally, there are maximizing dictionaries as well, but these cannot compete in the lemma count with similar dictionaries published in countries such as France, Germany, Spain, etc. A positive finding, on the other hand, is the relatively low number of multi-field dictionaries in the sample. While multi-field dictionaries can be convenient for users in that they cover several LSP areas in a single volume, they are generally poorer in linguistic information and tend to provide an imbalanced coverage of the individual fields. Therefore, the high occurrence of single-field dictionaries despite the adverse market conditions is to be regarded as encouraging.

The final conclusion regarding the overall character of Czech bilingual LSP dictionaries relates to their authorship. Although clues are rather sparse, the combination of the front matter information provided in the sample dictionaries and of a small survey carried out among several Czech publishing houses suggests that in most cases, the authors of the dictionaries are experts in the given LSP fields with a knowledge of English, not linguists themselves. Where linguists do participate in the project, they are usually only assigned the role of advisers or proofreaders. The main authorship of a LSP dictionary by a trained linguist was only established in several isolated

projects.

While it remains true that a dictionary needs to be prepared by a person possessing an extensive knowledge of the given terminology, the participation of a linguist is equally important to provide adequate linguistic information necessary to fulfill the dictionary's purpose. Therefore, a plea can be made for authors of lexicographical projects to ensure a more active participation of linguists in the preparation of the dictionaries.

In the following part of the analysis (3.3), the key components and structures of the sample LSP dictionaries are examined, starting with the front matter. Here, an encouraging finding is made that the two most important front-matter components – the preface and the user's guide – are included in a majority of the sample dictionaries, although their extent and quality varies considerably. A front-matter element, on the other hand, that appears absent from much of the sample, is a clearly stated dictionary function (reception, production or translation), suggesting that the user-oriented approach has still not firmly taken its roots in Czech lexicographical practice. Two of the front-matter components much-promoted by the Aarhus authors, the dictionary grammar and the encyclopaedic section, are found totally missing from the sample. This, however, is not to be regarded as a shortcoming; these two sections are virtually redundant if other elements in the dictionary are presented in a satisfactory way, especially grammatical and encyclopaedic information in the articles, and to some extent, the back matter.

As far as the back matter is concerned, only a few of the sample dictionaries have fully utilized the potential it presents. The appendix section offers a rare opportunity for the inclusion of a wide variety of information – diagrams, examples of important documents, tables of weights and measures, illustrations, lists of irregular verbs, information on various institutions, etc. A dictionary equipped with such data can serve an additional purpose to the lookup of target-language equivalents; it can, to some extent, play an important encyclopaedic role, especially where it treats a culture-dependent field with a different structure and customs for each of the languages.

Next, the analysis concentrates on the macrostructures of the sample dictionaries (3.3.3). A decisive preference for the alphabetical arrangement is established, with the lemma stock overwhelmingly organized according to the word-by-word principle. The popularity of the word-by-word arrangement can be put down to the character of both English and Czech for special purposes, where open compounds form a significant part of the terminologies. The analysis of the individual macrostructural types (straight-alphabetical, niching and nesting) has revealed almost an equal distribution of these types across the sample, with the straight-alphabetical arrangement enjoying only a slightly smaller popularity than the equally popular niching and nesting. Both niching and nesting occur in dictionaries where space-saving is a major concern, while the straight-alphabetical arrangement is present in either very simple dictionaries without a great deal of linguistic input or, in two isolated instances, in dictionaries with a larger-than-usual amount of grammar or encyclopaedic information, where applying this information to the niched or nested sublemmata would result in a rather chaotic microstructure.

Another dictionary structure subjected to the analysis was the microstructure, i.e. the inner arrangement of the dictionary articles. Here, great differences in the amount and quality of the information items presented were established. A clear indication of a specific character of specialized dictionaries as compared to general-purpose dictionaries is the marked absence of pronunciation from the sample (only three dictionaries provide it). On the other hand, field labels, a typical feature of special-purpose lexicography, are widely used in the sample (two thirds of the dictionaries).

Rather disappointing results were yielded by the analysis of grammatical information in the sample. This information was found in less than half of the dictionaries. Moreover, in some instances it was used without any apparent benefit to the user (e.g. indication of word class in all the English lemma stock or providing gender for Czech lemmata in a dictionary obviously intended for Czech users). Valency, a syntactic item important for second-language production, was only indicated in nine sample dictionaries. This low occurrence may be due to the predominance of English-Czech dictionaries in the sample, where the authors may have not considered valency relevant for the purposes of reception. However, we believe valency to be an integral part of the

lemma that should always be indicated, at least in an abbreviated form. Very few dictionaries will actually serve a single purpose; a seemingly “passive” dictionary can provide users with linguistic information which – if remembered – can be later utilized for the purposes of production.

Lexical syntagmatic information, represented by collocations, was found to be provided in a small majority of the dictionaries. In a number of dictionaries, collocations were shown to be presented implicitly as part of usage examples, a trend very much in accordance with the practice of the monolingual ESL dictionaries. The tendency towards consistent inclusion of collocations is more marked in dictionaries of humanities; most technical dictionaries tend to neglect this information item.

Encyclopaedic information was found to occur in three distinct information items: the above-mentioned field labels, term definitions and encyclopaedic explanatory notes. Term definitions are rather rare in the sample dictionaries due to space constraints; if they do occur, it is invariably in technical dictionaries. On the other hand, field labels and explanatory notes take less space (especially if presented in smaller print) and can serve as valuable tools of meaning discrimination.

Lexical paradigmatic information found in the sample dictionaries only concerns synonyms, the indication of antonymy appears alien to Czech lexicographic practice. While the provision of synonyms addressed to the equivalent is almost universal, only a very limited number of sample dictionaries provide synonyms related to the lemmata. However, in LSP areas where terminological synonymy exists, we regard its inclusion as beneficial to the user, whatever the graphical means of presentation chosen.

Finally, the analysis of the cross-reference structures (based on the typology of Sandro Nielsen), has revealed a variety of function-oriented cross-reference indicators, ranging from Czech words or abbreviations to English or international commands; the use of symbols was found very sparse. However, the fact that almost half of the sample dictionaries lacked any mediostructure whatsoever is to be regarded as rather alarming, as cross-references represent a very efficient means of indicating relations within the given LSP field that can, at least to some extent, help overcome the isolating effect of the alphabetical arrangement.

The next section (3.3.6) of the analysis treats two additional aspects of the sample dictionaries, notably the presence of language for general purposes in LSP dictionaries and equivalence. As regards the former, general-language lemmata are shown to serve their purpose in a specialized dictionary; these are the LGP words that occur frequently in the given LSP corpus or collocate with some of the terms. Providing them is a user-friendly procedure that prevents the parallel use of a LGP dictionary. Naturally, words that are too general (such as *have*, *take*, etc.) ought to be avoided, and the proportion of the general vocabulary in the dictionary should not exceed a certain limit.

As regards equivalence in LSP dictionaries, some of the major problems concerning the provision of appropriate equivalents are stated, especially the existence of partial equivalence in culture-dependent terms, zero equivalence where a corresponding term has not yet been created in the target language, and the lack of meaning discrimination in some of the sample dictionaries, very likely to lead the user to the choice of an incorrect equivalent. Equivalence problems are found to be more common in dictionaries of humanities, which display a larger amount of culture-dependence and polysemy than technical dictionaries. Explanatory notes are identified as an efficient means of meaning specification wherever a one-to-one equivalent is missing.

The analysis of the sample dictionaries is complemented with a section on user research (3.4), introducing the various strategies of this increasingly popular method of lexicographical work. The results of our modest survey carried out in 2004 on students of the University of West Bohemia are presented, the most relevant one being that the active use of dictionaries is as frequent among the subjects surveyed as the passive use. Yet, a large number of active (i.e. Czech-English) dictionaries lack linguistic information that would enable confident production in the second language, as was confirmed by the students' comments on the translation task they had been assigned using a standard LSP dictionary.

The final section of the analysis provides an overall evaluation of the sample dictionaries (3.5). A rough distinction is made between dictionaries of humanities and so-called “technical dictionaries”. The former are shown, on average, to utilize more complex macrostructures and

to provide a greater variety of linguistic information. The latter, in turn, are demonstrated to display less complex macro- and microstructures, while, on the other hand, placing emphasis on the terminological correctness of the lemma stock (which, for example, manifests itself in the provision of definitions). However, the two dictionary groups also share some similar features, most notably the overwhelming preference for the alphabetical arrangement of the word-by-word type, the universal popularity of explanatory notes to indicate encyclopaedic and pragmatic information, and the general reluctance to indicate pronunciation.

The evaluative section finishes with the presentation of an original typology of the shortcomings of the dictionaries analyzed. These shortcomings are argued to be of three types :

1. **Disregarding the dictionary use**, manifesting itself, above all, in insufficient provision of grammatical information (especially in active dictionaries), the failure to lemmatize all high-frequency verbs from the LSP area (especially of verbs in passive dictionaries) and lack of pragmatic information to distinguish between second-language equivalents.
2. **Disregarding the dictionary user**, consisting in a lack of collocations, explanatory notes and other devices that enable semi-experts and, possibly, non-experts (provided they are included in the target group) to confidently receive and produce LSP texts. The disregard can also have the form of presenting linguistic or encyclopaedic information in a user-unfriendly manner.
3. **Lack of general lexicographic expertise**, involving a variety of omissions, both deliberate and unintentional, that result in the user's obtaining incorrect information, whether of orthographic, grammatical, semantic or encyclopaedic nature.

Following the analysis, the third major part of the thesis (Chapter 4) presents a methodology for the production of Czech bilingual specialized dictionaries, based both on the latest research into specialized and pedagogical lexicography and the results of the analysis itself. The purpose of the methodology is to provide prospective LSP dictionary authors with guidelines facilitating the compilation of user-friendly, multi-purpose specialized dictionaries that combine practicality with maximum user benefit.

The guidelines start with the discussion of preliminary work carried out at the initial stage of the lexicographic project. Before starting the corpus work, the following aspects of the planned dictionary are stated as requiring careful deliberation:

1. **LSP fields covered** (multi-, single- or subfield dictionary)
2. **dictionary size** (maximizing or minimizing dictionary)
3. **intended users** (their field and language competence)
4. **dictionary purpose** (reception, production, translation)
5. **author's background** (the encyclopaedic and linguistic competence of the compiler)
6. **external limitations of the dictionary project** (various external constraints forcing the compilers to compromise on the dictionary's size and complexity)

There is no universal recipe for producing an "ideal" dictionary; the individual macro-and microstructural decisions will always depend on the interplay of the six above-stated aspects of the project.

The next stage of the lexicographic project is shown to consist in the following steps:

1. **Method selection**, whereby selection from a corpus built of relevant LSP texts (whether printed or electronic) is recommended.
2. **Field selection**, consisting in delimitation of the dictionary's subject matter and breaking it down into subfields.

3. **Corpus selection**, whereby proportional representation of texts from the individual sub-fields should be ensured, while also making sure that texts relevant for all intended user groups are included.
4. **Lemma selection**, in which care should be taken to include other word classes (especially verbs and adjectives) besides nouns. In addition, it is important to select multi-word terms and collocations in addition to single-word lemmata.
5. **Equivalent selection**, where the author ought to make sure that each lemma is allocated an equivalent, even in the cases of partial or zero equivalence. In these problematic instances, explanatory equivalents, definitions or specifications by means of encyclopaedic notes should be provided.

The following part of the methodology deals with the actual design of a bilingual LSP dictionary, presenting general recommendations concerning the various dictionary components and structures. As regards the front matter, the guidelines only slightly modify and expand the results obtained from the analysis, as the state of the front matter in most sample dictionaries was found satisfactory. In the case of the back matter, on the other hand, the guidelines encourage lexicographers to make a fuller use of the potential it offers, especially as far as the encyclopaedic function of the appendix section is concerned.

In the discussion of the macrostructural choices to be made in dictionary planning, arguments are presented against the use of the systematic arrangement. Although helpful in describing the conceptual relations within the field, its information cost is very high, and, without an alphabetical index at the end of the dictionary, finding the desired lemma is a burdensome task. The same applies to semi-systematic dictionaries divided into several subfields which are then treated alphabetically.

In terms of quickness and ease of access (a major consideration in a dictionary built on the user-oriented principles), the alphabetical macrostructure emerges as the unrivalled arrangement. Its disadvantage of isolating conceptually related terms can be to some extent alleviated by a combination of encyclopaedic information, cross-reference structure and, possibly, a creative back matter. The word-by-word alphabetical principle appears suitable as far as Czech-English and English-Czech dictionaries are concerned due to the open character of compounds in both languages. In languages forming closed compounds (e.g. German), the letter-by-letter principle would seem more appropriate.

As regards the suitability of the three major alphabetical arrangements (straight-alphabetical, niching, nesting), much depends on the intended size and purpose of the dictionary, as well as on the character of the terminology in question. Where clusters of related terms occur within the terminology and space-saving is a concern, either niching or nesting will serve their purpose. Nesting allows the additional advantage of grouping related items without totally respecting the alphabet inside the sublemma section, the drawback being a slightly increased information cost of such an arrangement.

Neither niching or nesting is suitable in dictionaries where a larger amount of linguistic or encyclopaedic information is planned for the individual terms, as the result would be rather chaotic. For this type of dictionary, the straight-alphabetical arrangement appears more appropriate. It is important to remember that the straight-alphabetical macrostructure does not automatically mean a poor microstructure (since sublemmata are not allowed). As dictionaries produced abroad show, the straight alphabet has a great deal of potential where space-saving is not the main concern, with lemmata being able to accommodate a variety of grammar, encyclopaedic notes, paradigmatic information and collocations (without the sublemma status).

As far as the microstructure of the LSP dictionary is concerned, its design and complexity will, again, depend on the much-quoted factors such as dictionary type, direction (active vs. passive), intended user, etc. However, despite these expected differences, we argue that some microstructural elements should be present in any LSP dictionary that intends to be user-friendly:

1. spelling information (including spelling irregularities and regional variation)

2. pronunciation, especially where new or highly specialized terminologies are presented
3. basic grammar information (morphological irregularities, number and countability in nouns in specific instances, valency in verbs)
4. collocations
5. field labels
6. paradigmatic information (synonyms)
7. encyclopaedic notes to specify lesser-known or problematic terms
8. context markers to deliver pragmatic information, important for meaning discrimination
9. a system of cross-references to connect terms related to each other

Bearing the user's benefit in mind, it is also necessary to carefully plan the *manner* of presenting the individual information items. Especially where the target group of users can be expected to have very limited linguistic background, information should be presented in simple yet efficient way, avoiding the indication of formal categories (e.g. transitivity) that is likely to be unfamiliar to these users. Instead, it is recommended to use a variety of easy-to-understand information items such as collocations, valency examples, context markers, brief explanatory notes, etc. Similarly, where users with low L2 competence are anticipated, it may be a user-friendly solution to use Czech indicators for the presentation of linguistic and non-linguistic information. Moreover, if pronunciation is included, the author may wish to provide it in a czechized version that avoids the use of unfamiliar IPA symbols where possible.

In more ambitious projects, however, where users with higher L2 competence and experience in the use of foreign teaching materials are expected, an appropriate solution might be to provide L2 (English in our case) indicators of linguistic information to make the dictionary design closer to that of the ESL dictionaries. In addition, the use of the IPA can be recommended, as users will have worked with it at some point when learning the L2.

In either case, the lexicographer's effort to plan the dictionary from the viewpoint of the planned users, not from his/her own linguistic heights, will undoubtedly be rewarded by a great deal of user satisfaction, thus also increasing the commercial value of the dictionary.

In order to make the guidelines proposed as concrete and descriptive as possible, a typology of three dictionary models (described in detail for both directions and exemplified on specific entries) is introduced in the final part of the methodology, with the aim of meeting the particular needs and resources of individual dictionary projects. The models can be summarized as follows:

1. The unreduced dictionary

- closely resembling ESL dictionaries by the wealth of linguistic information provided (especially implicit syntagmatic information)
- requiring the authorship of a compiler trained in linguistics
- intended for users with at least intermediate L2 competence
- suitable for the purposes of reception, production as well as translation due to its syntagmatic character

2. The reduced dictionary

- reduced in the amount of linguistic information, yet still containing the basic collocations that could cause difficulties to semi- and non-expert users
- suitable for authors who are field experts with a practical knowledge of L2, although some input of a linguist may still be needed
- intended for users of all L2 competence levels

- suitable for the purposes of reception, with reduced usefulness for the purposes of production in and translation into L2

3. The minimal dictionary

- containing a bare minimum of linguistic information
- suitable for field-competent authors without formal training in linguistics
- very easy to use, yet displaying reduced user-friendliness due to the bare microstructure
- sufficient for passive use only; its potential for active use is very limited
- recommendable only for projects with severely constrained resources

The proposed typology is stated as only approximate since a large number of “hybrid” lexicographic projects can be expected in reality. Naturally, the unreduced dictionary appears to fulfill the three major dictionary functions in the most complete way. However, as its compilation may not always be viable due to various constraints, two other alternatives (the reduced and the minimal dictionary) are offered. Although the minimal dictionary is considered unhelpful as regards active use, its inclusion is in accordance with the descriptive (rather than prescriptive) approach adopted by the thesis. Moreover, even this simplified dictionary type can be consistent in the presentation of a certain minimum of linguistic and non-linguistic information.

Admittedly, the guidelines presented in the methodology are mainly aimed at English-Czech and Czech-English dictionaries, without much reference being made to other languages. However, most of the principles laid out in the chapter are universal, only requiring some modification for those languages whose character is different from that of English.

The last part of the thesis (provided in the Appendix section) represents an attempt to put the principles laid down in the methodology into practice. It consists of a model unreduced English-Czech and Czech-English dictionary of parrot-keeping, built from a corpus of relevant LSP texts without any aid in the form of an older bilingual reference work on the topic. The dictionary is complete with full-length front matter and an initial commentary describing the whole process of its compilation. The choice of the unreduced format was mainly dictated by the desire to show a syntagmatic LSP dictionary in practice, there being very few of them on the Czech market.

Great linguists of the past have likened the preparation of dictionaries to harmless drudgery or to an equivalent of punishment. Despite the sometimes monotonous character of the lexicographic work, the experience of compiling the above-mentioned dictionary proved to be highly rewarding, with constant challenges produced by the unmapped Czech terminology of parrot-keeping and its English equivalents, as well as by the different character of the Czech and English languages. A very valuable finding to be gained from the work is that to produce such a dictionary with any degree of confidence, an equal measure of linguistic training and real experience of the given LSP area is needed. To create a dictionary of parrots means *knowing* about of parrots as well as about their keepers, as these will form the core of the future users. On the other hand, it is difficult to imagine producing the dictionary without the linguistic background received in the past years. Therefore, the work on the dictionary has confirmed our earlier claim that producing specialized dictionaries represents a blend of terminography and general lexicography, and that both a field expert and a linguist are needed to apply their skill in the work.

Having earlier pointed out the rather neglected state of specialized lexicography in the Czech Republic, it is our future aim to continue in the research begun in the present thesis. More specifically, we aim to carry out a series of carefully planned user surveys to determine more precisely the needs of various types of users, depending on their background, language competence and specialization. Furthermore, circumstances permitting, we intend to convert the model mini-dictionary of parrot-keeping into a fully-fledged dictionary (possibly extending it to the whole field of aviculture) and offer it for publication. Our long-term aim is to continue raising the awareness of the need to study and write on the user-oriented approach to specialized lexicography in the Czech lexicographic environment to produce publications comparable to those forwarded by experts abroad.

Appendix A

A model English-Czech and Czech-English Dictionary of Parrot-Keeping

The best way in which the dictionary can fulfil the needs of the users and its functions is for the lexicographers to compile a syntagmatic LSP dictionary.

– Sandro Nielsen

A.1 Background to the dictionary

The present section provides an outline of the main principles on which the model dictionary of parrot-keeping was compiled, starting with preliminary work and finishing with the final design of the dictionary.

The first steps consisted in determining the basic character of the planned dictionary and in the specification of the target group of users. Given its exemplary nature, the dictionary had to be conceived of as a minimizing one, with the lemma count not extending beyond several hundred. Rather than producing a larger single-direction dictionary, a decision was made to compile a bi-directional reference work with a reduced number of lemmata. The dictionary was planned to serve the purposes of reception, production as well as translation from and into English. The function of translation was included with respect to the increasing number of English articles and books on aviculture published in the Czech Republic as well as the lively exchange of knowledge taking place between Czech and English-speaking breeders.

As the hypothetical marketability of the dictionary also had to be considered, it was decided that the dictionary should be designed for a broader scope of users than only experts in aviculture. A fact was taken into consideration that keeping a parrot is a pastime in many Czech households, without the keepers necessarily engaging in the study of parrot biology, genetics or ethology. From our own experience of writing for the popular magazine *Papoušci*, these lay parrot-keepers tend to look for information on the care and behaviour of their pets on the Internet; often searching English pages due to the persisting lack of Czech sources. Besides the professional and semi-professional parrot-keepers, these hobbyists were, therefore, included as intended users. In addition, the target user group also comprised translators, interpreters and students of natural sciences. The users would be Czech speakers seeking assistance with English, not vice versa, as it is difficult to imagine a significant group of English parrot-lovers desiring assistance with Czech parrot terminology.

From the beginning, a great challenge when planning the dictionary consisted in deciding on its contents and complexity. With respect to the LSP dictionary typology proposed in Chapter 4, two options came into question: an unreduced or a reduced dictionary, the minimal dictionary having been described as user-unfriendly. Although it can be assumed that a considerable number of parrot-keepers would prefer a reduced dictionary due to their lack of linguistic background and their predictable desire to simply find an equivalent as quickly and easily as possible, a choice was finally made to produce an unreduced dictionary.

One reason for this decision was the intended inclusion of translation among the dictionary's functions; from our own experience of translating parrot-related articles from and into English we know that a reduced dictionary could not provide the relevant information needed, resulting in the translator's having to search for additional information on the Internet or in ESL dictionaries. Moreover, the translators working for Czech parrot magazines and publishing houses involved in translating hobby literature are not always field experts, thus often requiring some amount of encyclopaedic information that the reduced dictionary would be unable to accommodate. Finally, the fact was taken into consideration that out of the three types proposed, the unreduced dictionary is the most difficult to compile and would therefore deserve thorough exemplification in the present thesis.

The preliminary considerations having been made, the corpus selection was carried out. Due to the total lack of any previous Czech reference works on the subject, two parallel corpora had to be built in order to secure the terminology in both languages. The sources of the corpus were determined with relative ease. For the Czech corpus, a number of established magazines devoted to aviculture were selected, most notably *Papoušci*, *Nová Exota* and *Fauna*. These periodicals comprise both highly specialized articles for experienced breeders and popular articles for pet owners, corresponding with all the sections of the target group. In addition, a series of books by the Czech ornithologist Milan Vašíček *Papoušci Austrálie*, *Papoušci Afriky a Asie* and *Papoušci Ameriky* were chosen, as they contain detailed descriptions of the individual parrot species, their breeding patterns and their care requirements.

As far as the English corpus was concerned, a greater reliance on Internet sources had to be allowed for due to the limited availability of English books devoted to the subject. To include a similar type of sources as in the Czech corpus, English electronic magazines catering for both experts and pet parrot owners were researched, most importantly the excellent Internet journal *Winged Wisdom*. As regards printed sources, three major publications were used – the *Dictionary of Aviculture* by R.M. Martin (in fact an encyclopaedia, not a classic dictionary), the *Parrakeets of the World* by M. M. Vriends, and the handbook of parrot ethology *Parrot Problem Solver* by Barbara Heidenreich. In addition, a number of other auxiliary sources were utilized, ranging from web pages of various parrot societies to discussion forums dedicated to parrot care.

As to the excerption, recording and processing of the terminology, a limited amount of special software was used. In the electronic part of the corpus (i.e. the material obtained from the Internet, containing about 200 000 words), the Monopro Concordancer Version 2.0 was employed to elicit collocations and multi-word terms. Two parallel term files were built using the L^AT_EX system, with individual records containing the terms themselves, their collocations as obtained from the corpus and comments on their linguistic and/or encyclopaedic aspects. Where an equivalent was known from our immediate knowledge of the parrot-keeping terminology, it was entered directly into the record. In most instances, however, the correctness of these “immediate” equivalents was checked in the electronic part of the corpus or by means of the Google search engine, comparing several parrot-related sources to be certain of the spelling and other characteristics of the equivalent. In a proportion of instances, the equivalent could not be identified on the basis of experience and had to be searched in the parallel corpus.

After entering the equivalent into the corresponding record, it was subsequently copied into the opposite-direction term file as a lemma (provided the file did not contain it already), with the original lemma stated here as the equivalent. This was done to ensure that each term was treated in both of the directions.

As suggested above, the recorded terms were being continuously completed with other relevant information, both linguistic and encyclopaedic in nature. The linguistic information related to

English was most often obtained using some of the major ESL dictionaries available, especially *Oxford Advanced Learner's Dictionary*, the *Longman Dictionary of Contemporary English* and *Velký anglicko-český slovník* by Hodek and Hais. As it was decided at the very beginning that the target users of the model dictionary would be Czech users, the linguistic information was tailored to their needs; the knowledge of the native language was presupposed and also utilized in the presentation of encyclopaedic and pragmatic information.

Some of the entries were also provided with encyclopaedic notes. This was the case of terms that were somehow new or could present difficulties to the user, including terms from medicine, anatomy, ethology and other rather specialized fields. These encyclopaedic notes were not constructed as definitions, but rather as brief specifications of the term in question. These specifications were also needed where an equivalent was difficult to produce, either as it did not exist in Czech or because the terminology was not fully standardized.

At quite an early stage of the corpus work it became clear which macrostructure type would be the most suitable for the dictionary. The original plan was to order the dictionary in the nest-alphabetical arrangement due to the attractiveness of the possibility to group related terms together without being completely constrained by the alphabet. For this very reason, the niche-alphabetical system was rejected straight away, as it was found too limiting in its potential for grouping related terms. However, soon the problematic aspects of the nest-alphabetical choice began to emerge. The main one was the high occurrence of multi-word terms in the terminology of parrot-keeping – or, more specifically, multi-word terms that occur in a solitary manner rather than as members of groups of related terms that could be clustered together.

Moreover, the nesting principle requires the lemmatization of the first or the head constituent while all the multi-word terms containing that constituent are clustered or listed as its sublemmata. However, in the early attempts to arrange some of the corpus terms in the nest-alphabetical manner it became obvious that for most of the multi-word terms there was not a great deal of sense in lemmatizing the first or the chief constituent alone, as it in itself had no great significance for the field of parrot keeping; the real significance came into play only when the multi-word term was presented as a whole. We can take the term *wood shavings* (hobliny) as an example. Lemmatizing either “wood” or “shavings” as the head lemma only to find that there are no other sublemmata to build the nest from does not appear very practical. More examples of such “solitary multi-word terms” can be given, e.g. *nesting box*, *upper mandibles*, *hypersensitivity pneumonitis*, *entrance hole*, etc. Moreover, all of the names of parrots are multi-word, and these must certainly be presented as a whole, each occupying a separate entry.

In short, a close examination of the character of the parrot-keeping terminology revealed that the arrangement that suits this particular terminology best is the straight-alphabetical macrostructure, with multi-word terms being presented as independent lemmata. Although the niching/nesting principles may appear more “sophisticated”, practicality and regard for the needs of the user were the chief considerations in the project, and the straight-alphabetical principle appeared to suit these purposes well.

Nevertheless, the choice of the straight-alphabetical arrangement was not entirely unproblematic either. The first problem that needed to be dealt with was the presentation of collocations, as we had established earlier that they form an integral part of any good-quality dictionary (see 4.6). It is not a custom of Czech lexicographers to provide collocations where the straight-alphabetical system is employed. Indeed, from surveying the sample dictionaries it almost appears as if this arrangement did not in principle permit the inclusion of collocations, because it does not allow sublemmata.

However, the inclusion of collocations in straight-alphabetical dictionaries is taken for granted by foreign LSP lexicographers, as described, for instance, by [Nielsen 1994, 270-276]. Therefore, the choice of the straight-alphabetical macrostructure was safe as far as collocations were concerned; the important point to remember was that unlike in the nest-alphabetical arrangement (see e.g. [Chromá 1995]), the collocations would not have a sub-lemma status and would have to be graphically differentiated from the head lemma.

The second problem, however, proved to be far more challenging, consisting in the necessity of distinguishing between multi-word terms and collocations and drawing a clear line between

the two. The multi-word terms would then appear as lemmata, while collocations would be presented as linguistic information under the individual lemmata. As suggested in 3.3.4, the true distinction between multi-word terms and collocations can only be made by an expert in the given field as the boundary between these two is of a fuzzy nature. Well-aware of the possible pitfalls of separating the two groups, we nevertheless attempted to carry the distinction out, using our linguistic knowledge as well as our long-term experience in the field of parrot-keeping. The task proved more difficult than expected; consider, for instance, the word combinations found in the corpus containing the term *parrot*:

companion parrot papoušek chovaný jako mazlíček
hand-reared parrot ručně odchovaný papoušek
one-person parrot papoušek fixovaný na jednoho člověka
single-kept parrot papoušek chovaný jednotlivě
wild-caught parrot papoušek z odchyty

Which of these combinations are we to consider as collocations and which as multi-word terms? Quite safely, *companion parrot* can be regarded as a multi-word term, but what about *wild-caught parrot* or *single-kept parrot*? And even if a successful distinction is made, does it mean that the latter two (provided they are collocations) will be stated under the lemma *parrot* in the collocation section, while *companion parrot* (provided it is a multi-word term) will appear elsewhere in the dictionary as a lemma, namely under the letter “C”?

Under the nesting arrangement, these combinations would normally appear in the nest as sublemmata. However, as explained above, the purely nesting principle could not be applied to the projected dictionary of parrot-keeping due to the high amount of multi-word terminology. Therefore, an alternative solution had to be sought. As we regarded it unfortunate to separate such terms as *companion parrot* and *wild-caught parrot* to comply with the rigid collocation/multi-word term distinction required by the straight-alphabetical principle, a hybrid solution was adopted.

The solution concerns those few lemmata in the dictionary that enter a number of terminological combinations which are mostly multi-word terms, but sometimes possibly collocations closely resembling multi-word terms (such as the above-mentioned *wild-caught parrot*). These terminological combinations are alphabetically arranged in the corresponding entries in a nest-like manner, printed in bold to be visually distinguished from usage examples, presented in plain italics. The usage examples, provided with every lemma except the names of parrots and some diseases, contain implicit information on the lexical syntagmatic properties of the lemma, therefore also subsuming “pure” collocations that are clearly not multi-word terms. The result is a straight-alphabetical macrostructure with some elements of nesting in a small number of lemmata where we considered it user-friendly to keep terminological combinations containing the lemma together. Here is an example of such an entry:

aviary /'erviəri/ n[C] voliéra
fit the aviary with double wire mesh vybavit voliéru dvojitým pletivem
place a bird in an aviary umístit ptáka do voliéry
secure the aviary against predators zabezpečit voliéru před dravci
indoor aviary pokojová voliéra
metal-framed aviary voliéra s kovovou konstrukcí
mixed aviary smíšená voliéra osazená různými druhy ptactva
outdoor aviary venkovní voliéra
timber-framed aviary voliéra s celodřevěnou konstrukcí

Although this solution can, naturally, be questioned by linguists, we draw reassurance from the fact that the user will always arrive at the term or phrase sought due to the alphabetical principle applied both to the lemmata and the terminological combinations under each lemma. There may be occasional double lookups, but the desired expression will always be identified, either as an

independent entry or as a terminological combination under the corresponding lemmatized term.

As the choice of macrostructure was made at an early stage of the corpus work, the data obtained from the corpus could then be arranged in such a way that made its subsequent conversion into dictionary entries as easy as possible, i.e. the collocations identified in the corpus were being entered under the individual terms in an alphabetical sequence. When the desired number of terms and their collocations had been reached, the entries in the two parallel files (E-Cz and Cz-E), all complete with their equivalents and linguistic, encyclopaedic as well as pragmatic information, began to be turned into dictionary entries according to a pre-defined design.

Listed below are the individual solutions employed in the design:

Alphabetical principle The dictionary is arranged in the straight-alphabetical manner with some elements of nesting. Multi-word terms form independent entries and are ordered according to their first constituent on the basis of the word-by-word principle. Collocations are presented implicitly in usage examples, also arranged alphabetically. Where the lemma enters a number of related terminological combinations, they are presented in bold print at the end of the entry to prevent their scattering across the dictionary.

Typographical implementation of the entry The lemmata, their synonyms and terms indicated by a cross-reference are all presented in bold lowercase print, the lemmata appearing in larger print and protruded to be given prominence. The equivalents are provided in plain lowercase print. The usage examples appear in italics, each on a new line and indented, with the lemma being presented in full. No special ordering device (a triangle, a square etc.) is used to indicate the example section; the combination of indentation and italics makes the examples clearly distinguishable. Linguistic and field labels are presented in smaller print, as is encyclopaedic and pragmatic information. This is done to save space and to distinguish this information from the lemma and the equivalent(s).

Arrangement of the entry The lemma section of the English-Czech direction includes the following components: spelling information (spelling variants), lemma labelling (linguistic and field labels), morphological information (word class in English lemmata, number in plural nouns, countability in English nouns, irregularities in English nouns and verbs), syntactic information (valency), lexical paradigmatic information (synonymy), lexical syntagmatic information (shown implicitly in usage examples), contextual pragmatic information (context markers) and encyclopaedic information (explanatory notes).

The equivalent section consists of one or several equivalents plus linguistic and encyclopaedic information depending on a given direction. Synonymous equivalents are separated by a comma, non-synonymous equivalents are numbered to emphasize their semantic difference. In the Czech-English direction, the equivalents are accompanied by approximately the same amount of linguistic information as the lemmata in the English-Czech direction, making the two directions relatively independent dictionaries (linguistic information on the Czech terms is kept to a necessary minimum due to the fact that the dictionary is intended for Czech users). The equivalents of names of individual parrots are followed by their names in Latin, both in the English-Czech and Czech-English section.

Presentation of linguistic, encyclopaedic and pragmatic information Each English term is provided with phonetic transcription, presented in the International Phonetic Alphabet (IPA) characters due to the unreduced character of the dictionary and its intended affinity with international ESL dictionaries. For the same reasons, the information on spelling and grammar is presented by means of well-established English indicators (sg, n, adj, C/U *AmE*, etc.), all explained in the front matter of the dictionary. One of the reasons is that some categories, for instance countability or transitivity, are not stated by most Czech LSP dictionaries, and we do not consider introducing new special Czech indicators (e.g. *poč/nepoč*, etc.) as a particularly fortunate solution.

Irregular forms are provided in full in brackets. The syntactic properties of verbs are stated by means of valency information, combining the indication of transitivity with a brief valency

formula showing the verb pattern in question. Similar formulae are also indicated in nouns and adjectives where appropriate. More syntactic information is given implicitly in the usage examples. Encyclopaedic information is presented in the form of field labels, by means of brief explanatory notes elucidating some lesser-known and problematic terms, or, again, implicitly by means of the usage examples.

Contextual pragmatic information is included in the form of context markers, very short (often one-word) comments specifying the meaning or context of the term in question (e.g. the simplified entry: **hen** samice _{u ptáků}). Both encyclopaedic and pragmatic information is presented in Czech. Encyclopaedic and pragmatic information is employed not only in the English-Czech but also in the Czech-English direction. This is intended to aid translators who have a high language competence but lower LSP competence. In order to translate the term correctly, it must be fully understood first.

Information on lemma synonymy is indicated by means of the symbol “=” and placed after the comment on the equivalent before the usage section. For the presentation of synonyms of the equivalent see above. Information on antonymy is indicated by means of the symbol “≠” appearing in the same place as information on synonymy.

Cross-reference structure To avoid overloading the dictionary with English indicators, the cross reference structure is confined to the use of symbols. More important cross-references, e.g. those referring an abbreviation to its full version, are indicated by means of “⇒”. Less important cross-references, e.g. those asking the user to compare a given lemma with one related to it, have the form “→”.

The arrangement introduced in the parrot-keeping dictionary is not intended to represent a universal model, suitable for any type of lexicographic project. Rather, it is an attempt to exemplify the compilation of an unreduced dictionary on a concrete LSP area. As mentioned in Chapter 4, the category of the unreduced dictionary moves on a scale, and, therefore, the lemmata in the model dictionary of parrot-keeping could be made even more “unreduced”, e.g. usage examples could be given under the individual valency patterns rather than all together in a single example section, etc. However, the project also had to take into consideration the target group of users and their reference needs. As quick lookup will be a key requirement for the prospective users (most of whom will be parrot keepers with very varied knowledge of English), we did not think it wise to insert examples in between individual equivalents. The information cost of such an arrangement would be too high.

The result as presented here is, therefore, a compromise between practicality and what we believe are the basics of a multi-purpose dictionary, able to serve the language reception, production and translation. For dictionaries of different LSP fields and user situations, micro- and macrostructural choices other than those employed here may prove suitable. However, the requirement for the inclusion of grammatical, lexical paradigmatic, lexical syntagmatic, encyclopaedic and pragmatic information as well as a consistent cross-reference structure remains valid for any dictionary type.

It must be borne in mind that the model dictionary is not a real lexicographic project, only a demonstration of some basic dictionary-making principles. Therefore, some aspects have been omitted. This is the case, for instance, of the dictionary’s back matter, where a wealth of useful information would normally be included (illustrations, tree diagrams of parrot species, examples of some legal documents, references to the leading conservation and parrot-keeping organizations, etc.). Similarly, some access structure elements, e.g. running heads, have not been implemented due to software limitations. Finally, a real lexicographic project could utilize the possibility of an electronic version of the dictionary, where space would represent no constraint and the information could be conveyed in much greater detail.

Thus, however, although the model dictionary remains incomplete, the ideas regarding its improvement and enlargement remain challenges to be taken up at some later stage in a potential authentic project.

A.2 Předmluva

Předkládaná publikace je prvním českým dvojjazyčným slovníkem věnovaným problematice chovatelství papoušků. Jeho vznik byl motivován stále narůstajícím počtem českých chovatelů, kteří z důvodu nedostatku domácí hobby literatury hledají informace v zahraničních pramenech, popř. navazují kontakty se svými zahraničními kolegy, ať už prostřednictvím mezinárodních výstav, burz nebo diskusních fór. Slovník by jim měl sloužit k porozumění anglickým textům věnovaným chovu papoušků, k překládání českých chovatelských materiálů do angličtiny a k základní dvojjazyčné komunikaci v daném oboru. Slovník je též určen tlumočnickům, překladatelům a studentům přírodovědných oborů. Významný podíl encyklopedické složky jej činí přístupným i zájemcům z řady široké veřejnosti.

Slovník vznikl v letech 2005 – 2006 na základě rozsáhlé excerpce autorky, lingvistky působící na Západočeské univerzitě a zároveň dlouholeté chovatelky exotického ptactva. Hlavním zdrojem excerpce českých termínů byly časopisy *Papoušci*, *Fauna* a *Exota* a dále populární knihy Milana Vašíčka *Papoušci Austrálie*, *Papoušci Afriky a Asie* a *Papoušci Ameriky*. Paralelně s korpusem české terminologie vznikl i korpus termínů anglických. Nejvýznamnějšími prameny termínů tu byly publikace Matthewa M. Vriendse *Parrakeets of the World*, Richarda Marka Martina *Dictionary of Aviculture* a Barbary Heidenreichové *The Parrot Problem Solver*, dále elektronický časopis *Winged Wisdom* a další bohaté internetové zdroje (viz oddíl “Seznam použité literatury”). Veškerá excerpční a editační práce byla prováděna na počítači s využitím systému L^AT_EX.

Anglicko-český a česko-anglický slovník chovu papoušků obsahuje v každé části přibližně 200 hesel a dalších 100 terminologických spojení. Hesla jsou zpracována tak, aby poskytla co nejúplnější informaci o daném termínu; kromě ekvivalentů obsahují i přepis výslovnosti, pravopisné varianty, gramatické údaje, příklady užití hesel, synonyma a odkazy na termíny opačného významu. Jelikož jde o terminologii dosud u nás nezpracovanou, řada obtížnějších nebo málo známých termínů je opatřena krátkými encyklopedickými vysvětlivkami.

Slovník zahrnuje následující tematické oblasti: biologie papoušků, chovné podmínky, výživa a celková péče o ptáky, zdraví a nemoci, hnízdění a odchov mláďat, etologie papoušků a komerční a legislativní aspekty chovatelství. Kromě termínů striktně spadajících do oblasti chovu papoušků slovník obsahuje i podíl výrazů z obecného jazyka, a to těch, které se v chovatelské literatuře často vyskytují.

Závěrem nezbyvá než doufat, že slovník přispěje ke standardizaci české terminologie chovu papoušků a podníti české chovatele k intenzivnějšímu kontaktu se zahraničními zdroji a odborníky.

A.3 Pokyny pro uživatele

I. Abecední řazení

Hesla jsou řazena abecedně, víceslovná hesla podle prvního slova. Terminologická spojení uvnitř jednotlivých hesel jsou rovněž uspořádána abecedně.

II. Typy hesel a jejich uspořádání

1. jednoslovná hesla

aspergillosis /,æspədʒɪˈləʊsɪs/ n[u] *med.* aspergilóza nemoc dýchacího ústrojí

2. víceslovná hesla

V anglicko-české i česko-anglické části jsou víceslovné termíny uváděny vždy v přirozeném slovosledu. Například termín **vaječný zub** je tedy třeba hledat pod písmenem “V”.

3. terminologická spojení

Kromě samostatných hesel slovník obsahuje též další terminologická spojení vážící se k některým jednoslovným heslům. Tato spojení jsou uváděna vždy tučně na konci hesla:

band¹ /bænd/ n[C] kroužek sloužící k identifikaci ptáka
prevent the band from falling off the leg zabránit vyvléknutí kroužku
remove the band from the leg odstranit kroužek z nohy
use the band to identify the bird identifikovat ptáka pomocí kroužku
band number číslo kroužku
closed band uzavřený kroužek
open band otevřený kroužek

III. Struktura slovníkového hesla

1. Heslo je uvedeno v plném znění tučně větším písmem vždy na novém řádku.

2. Podstatná jména a slovesa s identickou formou jsou uváděna jako samostatná hesla a označena horním indexem. Jako první se uvádí vždy podstatné jméno:

bond¹ /bɒnd/ c pouto, citový vztah
bond² /bɒnd/ v [I/ŋ] ~with/to sb přilnout ke komu, sžít se s kým, upnout se na koho

3. Výslovnost je uvedena u všech anglických termínů. Forma jejího přepisu vychází ze symbolů Mezinárodní fonetické abecedy (IPA) – viz *Tabulka výslovnosti* na přebalu slovníku.

4. Gramatické údaje o heslu následují ihned za heslem. Uváděny jsou tyto kategorie:

a/ slovní druh:

psittacine /'psɪtəsəm/ adj

b/ počítatelnost u podstatných jmen, značená písmeny [C] (podstatná jména počítatelná = countable nouns) a [U] (podstatná jména nepočítatelná = uncountable nouns):

playgym /'pleɪdʒɪm/ n[C] ptačí strom

c/ číslo u těch podstatných jmen, která jsou uváděna v plurálním tvaru nebo která mají plurál nepravidelný:

bacteria /bæk'tɪəriə/ n[C]pl (sg **bacterium** /-iəm/) baktérie

d/ nepravidelné tvary sloves a podstatných jmen:

breed /bri:d/ (bred – bred /bred/)

e/ valence u sloves; slovesa nepřechodná (intransitivní, nevyskytující se s předmětem) jsou označena zkratkou [I], slovesa přechodná (transitivní, kombinující se s předmětem) pak zkratkou [ŋ]. Informace o valenci jsou též doplněny vyznačením předložkových vazeb:

attach /ə'tætʃ/ v [ŋ] ~ st to/on st připojit, připevnit co k čemu/na co

f/ příklady užití hesel jsou uvedeny u všech termínů kromě názvů papoušků. Tyto větné nebo polovětné konstrukce ilustrují gramatické a lexikální vlastnosti hesel (slovesné vazby, typické kombinace hesel s jinými slovy atd.):

crop /krɒp/ n[C] *anat. vole*
empty the crop vyprázdnit vole
feed the formula into the baby's crop krmit mládě směsí do volete
have a full crop mít plné vole
suffer a crop burn utrpět popálení volete

5. **Termíny synonymní** k heslu jsou uvedeny tučně za příslušným ekvivalentem a označeny symbolem “= ”:

chick /tʃɪk/ n[C] mládě papouška = **baby**

Termíny opačného významu jsou uvedeny taktéž za ekvivalentem a označeny symbolem “≠ ”:

hen /hen/ n[C] samice u ptáků ≠ **cock**

6. **Ekvivalent hesla** je uveden za heslem obyčejným písmem. Synonymní ekvivalenty jsou odděleny čárkou, jako první je uveden nejčastěji používaný ekvivalent:

nestor kea Kea /keə/, Mountain Parrot /'maʊntən 'pærət/ *Nestor notabilis*

Ekvivalenty různého významu jsou odlišeny čísly:

diet /'daɪət/ n 1 [C/U] strava, krmení 2 [C] dieta

7. **Gramatické údaje o ekvivalentu** jsou prezentovány podobným způsobem jako údaje o heslu; jejich rozsah závisí na cílovém jazyce dané části slovníku.

8. Všechny **druhy papoušků** jsou v obou směrech opatřeny latinským názvem. Ten je uveden kurzívou za ekvivalentem:

papoušek kapský Cape Parrot /keɪp 'pærət/ *Poicephalus robustus*

9. **Odkazy na související hesla** jsou dvojího druhu. Významnější odkazy (např. na synonymní termíny) jsou označeny symbolem “⇒ ”:

bird fancier's lung ⇒ *hypersensitivity pneumonitis*

Méně důležité odkazy (např. na slova podobného významu) jsou označeny symbolem “→ ”:

breeder /'bri:də/ n[C] 1 chovatel rozmnožující ptáky → *keeper*

IV. Pravopis

Anglická hesla jsou uvedena v britské angličtině. Americký pravopis a americké výrazy jsou označeny zkratkou *AmE* za heslem:

moult *AmE* **molt** /mɔʊlt/ v[|] přepeřovat

V. Terminologické a stylistické značky

Termíny spadající do specifického oboru (např. anatomie, zoologie atd.) nebo výrazy stylisticky zabarvené (hovorové, slangové atd.) jsou označeny speciálními značkami (viz *Seznam použitých zkratek a značek* na přebalu slovníku):

endemic /en'demik/ *adj* ~*to st zool.* endemický

VI. Zkratky

Slovník uvádí základní zkratky (např. **PBFD**) z oboru chovatelství papoušků. Do hesláře jsou včleněny podle striktně abecedního principu a pomocí symbolu “ \Rightarrow ” odkázány na své plné znění.

A.4 Tabulka výslovnosti

Souhlásky

p	pen	/pen/	s	sit	/sit/
b	brood	/bru:d/	z	zoo	/zu:/
t	tap	/tæp/	ʃ	she	/ʃi:/
d	did	/dɪd/	ʒ	vision	/'vɪʒn/
k	kit	/kɪt/	h	hit	/hɪt/
g	get	/get/	m	meat	/mi:t/
tʃ	chick	/tʃɪk/	n	net	/net/
dʒ	jet	/dʒet/	ŋ	ring	/rɪŋ/
f	feed	/fi:d/	l	lay	/leɪ/
v	vet	/vet/	r	red	/red/
θ	thick	/θɪk/	j	yes	/yes/
ð	this	/ðɪs/	w	wood	/wud/

Samohlásky

i:	keep	/ki:p/
i	happy	/hæpi/
ɪ	bit	/bɪt/
e	pet	/pet/
æ	cat	/kæt/
ɑ:	bar	/bɑ:/
ɒ	crop	/krɒp/
ɔ:	call	/kɔ:l/
ʊ	put	/pʊt/
u	actual	/'æktʃʊəl/
u:	food	/fu:d/
ʌ	cut	/kʌt/
ɜ:	bird	/bɜ:d/
ə	again	/ə'gen/
eɪ	day	/deɪ/
əʊ	know	/nəʊ/
aɪ	light	/laɪt/
ɔɪ	toy	/tɔɪ/
aʊ	how	/haʊ/
ɪə	here	/hɪə/
eə	there	/ðeə/
ʊə	pure	/pjʊə/

A.5 Seznam použitých zkratek a značek

adj	adjective	přídavné jméno
AmE	American English	americká angličtina
anat.	anatomy	anatomie
biol.	biology	biologie
C	countable noun	počítatelné podstatné jméno
I	intransitive verb	sloveso nepřechodné (<i>viz Pokyny pro uživatele</i>)
informl	informal	neformálně
Lat.	Latin	latinsky
med.	medicine	medicina
n	noun	podstatné jméno
pl	plural	množné číslo
sb	somebody	někdo
sg	singular	jednotné číslo
st	something	něco
T	transitive verb	sloveso přechodné (<i>viz Pokyny pro uživatele</i>)
v	verb	sloveso
zool.	zoology	zoologie

A.6 Tabulka symbolů

~	nahrazuje heslové slovo v údajích o valenci
⇒	označuje významnější odkazy (např. na plné znění zkratek)
→	označuje méně významné odkazy (např. na související termíny)
=	označuje synonymní termíny
≠	označuje termíny opačného významu

A.7 Seznam použité literatury

monografie

- Heidenreich, Barbara (2005) *The Parrot Problem Solver. Finding Solutions to Aggressive Behaviour*. Neptune City NJ: T.F.H. Publications.
- Martin, Richard Mark (1982) *The Dictionary of Aviculture* London: B.T. Batsford.
- Low, Rosemary (2000) *Proč můj papoušek ... ?* České Budějovice: Dona.
- Low, Rosemary (2004) *Amazoňané*. České Budějovice: Dona.
- Vašíček, Milan (1978) *Papoušci Austrálie*. Praha: Svépomoc.
- Vašíček, Milan (2002) *Papoušci Latinské Ameriky*. Kosmonosy: Barko.
- Vašíček, Milan (2003) *Papoušci Afriky a Asie*. Kosmonosy: Barko.
- Verhoef-Verhallen, Ester J.J. (2001) *Encyklopedie ptáků v klecích a voliérách*. Praha: REBO.
- Vriends, Matthew M. (1979) *Parrakeets of the World* Neptune City NJ: T.F.H. Publications.

časopisy

- Papoušci*. Časopis pro chovatele a přátele papoušků. Vyd.: Dona, České Budějovice.
- Exota*. Časopis pro chovatele a přátele exotického ptactva. Vyd.: EXOTA ops., Praha.

internetové zdroje

- www.birdsnways.com/wisdom
- www.ifauna.cz
- www.novaexota.cz
- www.parrotclub.sk
- www.parrot-link.co.uk
- www.theparrotsociety.uk.org
- www.worldparrottrust.org

A.8 Anglicko-český slovník chovu papoušků

African Grey /ˌæfrɪkən ˈɡreɪ/ žako šedý *Psittacus erithacus* = Grey Parrot

Alexandrine Parakeet /ˌæɪlɪŋˈzændrɪn ˈpærəki:t/ alexander velký *Psittacula eupatria*

appetite /ˈæpɪtaɪt/ n|c|u] chuť k jídlu

have a healthy appetite mít zdravou chuť k jídlu

lose appetite ztratit chuť k jídlu

show an increase/decrease in appetite (pro)jevit nárůst/pokles chuti k jídlu

aspergillosis /ˌæspədʒɪˈləʊsɪs/ n|u] med. aspergilóza

nemoc dýchacího ústrojí

Jardine's Parrots are prone to aspergillosis papoušci konžští jsou náchylní vůči aspergilóze

attach /əˈtætʃ/ v|ɪ|ɪ] ~ st to/on st připojit, připevnit co k čemu/na co

attach the box to the outside of the cage připevnit budku zvenčí klece

use screws to attach the wire mesh připevnit pletivo pomocí šroubů

aviary /ˈeɪvɪəri/ n|c] voliéra

fit the aviary with double wire mesh vybavit voliéru dvojitým pletivem

place a bird in an aviary umístit ptáka do voliéry

secure the aviary against predators zabezpečit voliéru před dravci

indoor aviary pokojová voliéra

metal-framed aviary voliéra s kovovou konstrukcí

mixed aviary smíšená voliéra osazená různými druhy ptactva

outdoor aviary venkovní voliéra

timber-framed aviary voliéra s celodřevěnou konstrukcí

aviculture /ˈeɪvɪkʌltʃə/ n|u] chov ptactva

be familiar with legal aspects of aviculture být obeznámen s právními aspekty chovu ptactva

practise commercial aviculture provozovat komerční chov ptactva

consult an expert in aviculture (po)radit se s odborníkem na chov ptactva

bacteria /bækˈtɪəriə/ n|c]pl (sg bacterium /-iəm/) bakterie

bacteria proliferate in stale food bakterie se množí ve starém krmení

band¹ /bænd/ n|c] kroužek sloužící k identifikaci ptáka

prevent the band from falling off the leg zabránit vyvléknutí kroužku

remove the band from the leg odstranit kroužek z nohy

use the band to identify the bird identifikovat ptáka pomocí kroužku

band number číslo kroužku

closed band uzavřený kroužek

open band otevřený kroužek

band² /bænd/ v|ɪ|ɪ] kroužkovat ptáky

band a week after hatching kroužkovat týden po vyhlínutí

band chicks with a closed band kroužkovat mladé uzavřeným kroužkem

bar /bɑː/ n|c] tyč, mříž klece/voliéry

feed a parrot through the cage bars krmit papouška přes mříže klece

bar spacing rozteč mříží

horizontal bars vodorovné mříže

vertical bars svislé mříže

bird fancier /ˌbɜːd ˈfænsiə/ n|c] milovník ptactva

become a keen/respected bird fancier stát se nadšeným/uznávaným milovníkem ptactva

bird fancier's lung /ˌbɜːd ˈfænsiəz lʌŋ/ slang plíce milovníků ptáků ⇒ **hypersensitivity pneumonitis**

bird trade /ˈbɜːd treɪd/ n|c] obchod s ptáky

be involved in controlled/illegal bird trade být zapojen do regulovaného/nelegálního obchodu s ptáky

Black-capped Lory /ˌblækˈkæpt ˈlɒri/ lori tříbarvý *Lorius lory*

Black-headed Caique /ˌblækˈhedɪd kaɪˈiːk/ amazonek černotemenný *Pionites melanoccephala*

Blue and Gold Macaw /ˌbluː.ændˈɡəʊld məˈkoː/ ara ararauna *Ara ararauna*

Blue-fronted Amazon /ˌbluːˈfrʌntɪd ˈæməzən/ amazonek modročelý *Amazona aestiva*

Blue-headed Parrot /ˌbluːˈhedɪd ˈpærət/ amazonek modrohlavý *Pionus menstruus*

bond¹ /bɒnd/ n|c] pouto, citový vztah

a close bond between the pair úzké pouto mezi párem

form a bond with a keeper vytvořit si pouto k chovateli

bond² /bɒnd/ v|ɪ|ɪ] ~with/to sb přilnout ke komu, sžít se s kým, upnout se na koho

a baby bird will bond to a human mládě přilne k člověku

young parrots bond easily mladí papoušci se snadno sžívají

Greys tend to bond with one family member žakové se upínají na jednoho člena rodiny

the pair have bonded pár k sobě přilnul

boredom /ˈbɔːdəm/ n|u] nuda

prevent disorders caused by boredom předcházet poruchám způsobeným nudou

self-mutilate out of boredom sebepoškozovat se z nudy

suffer from boredom trpět nudou

relieve boredom by providing toys zahnat nudu poskytnutím hraček

breed /briːd/ (bred – bred /bred/) v 1 |u] rozmnožovat se, množit se, mít mladé, hnízdit 2 |ɪ] chovat, odchovávat co

breed birds in outdoor aviaries odchovávat ptáky ve venkovních voliérách

cockatiels breed easily in captivity korely se v zajetí dobře rozmnožují

stimulate the pair to breed stimulovat pár k hnízdění

breeder /ˈbriːdə/ n|c] 1 chovatel rozmnožující ptáky → keeper 2 chovný pták

buy parrots from an experienced breeder nakupovat papoušky u zkušeného chovatele

breeder cock chovný samec

breeder code kód chovatele na kroužku

breeder hen chovná samice

breeder fatigue /ˈbriːdə fəˈtiːg/ n|u] slang únava chovatelů vyčerpanost z chovu většího množství ptáků, zejména v období hnízdění

reduce breeding stock due to breeder fatigue snížit počet chovných ptáků z důvodu únavy chovatelů

suffer from breeder fatigue trpět únavou chovatelů

breeding /ˈbriːdɪŋ/ n|u] rozmnožování, hnízdění, odchov

- achieve good breeding results dosáhnout chovatelských úspěchů
 have modest breeding requirements mít skromné nároky na hnízdění
- breeding pair** /'bri:diŋ peə/ n [ɔ] chovný pár
 set up a breeding pair sestavit chovný pár
 use an established breeding pair as foster parents použít spolehlivý chovný pár jako náhradní rodiče
- breeding season** /'bri:diŋ 'si:zən/ n [ɔ] hnízdní období
 make preparations for the breeding season konat přípravy na hnízdní období
 provide green food throughout the breeding season poskytovat zelené krmivo po celé hnízdní období
- brood**¹ /'bru:d/ n [ɔ] hnízdo mláďata, mláďata z jedné snůšky = clutch
 the pair reared a brood of four pár vyvedl čtyři mladé
- brood**² /'bru: d/ v [ɪ] 1 sedět na vejcích 2 zahřívát mláďata
 the brooding hen becomes aggressive samice sedící na vejcích se stává agresivní
- brooder** /'bru:ðə/ n [ɔ] umělá líheň
 maintain the recommended temperature in a brooder udržovat v umělé líhni doporučenou teplotu
 place a chick in a brooder umístit mládě do umělé líhne
- Budgerigar** /'bʌdʒəriɡə:/, infml budgie /'bʌdʒi:/ andulka vlnkovaná *Melopsittacus undulatus*
- cage** /keɪdʒ/ n [ɔ] klec
 allow the bird regular out-of-cage time dopřát ptákoví pravidelný pobyt mimo klec
 house the bird in a roomy cage držet ptáka v prostorné kleci
 fit the cage with a safe door locking mechanism vybavit klec bezpečným mechanismem zavírání dveří
all-wire cage celodráťená klec
box cage bednová klec
hospital cage nemocniční klec
indoor cage pokojová klec
transport cage přepravní klec
- call**¹ /kɔ:l/ n [ɔ] volání, hlasový signál
 give out a call of warning vydávat varovné volání
macaws are known for their loud and harsh call arové jsou známi svým hlasitým a chraplavým voláním
contact call kontaktní volání
mating call volání při námluvách
- call**² /kɔ:l/ v [ɪ] volat, přivolávat
 call one's mate volat partnera
 call the vet in an emergency volat v nouzi veterináře
 the female was calling to her keeper samice přivolávala chovatele
- call bird** /'kɔ:lbɜ:d/ n [ɔ] slang volavka pták použitý pro přivolání jiného ptáka
 use a call bird to catch an escaped parrot použít volavku k chycení utěknuvšího papouška
- Cape Parrot** /keɪp 'pærət/ papoušek kapský *Poicephalus robustus*
- chick** /tʃɪk/ n [ɔ] mládě papouška = baby
 buy a fully-feathered/three-month-old chick koupit zcela opeřené/tříměsíční mládě
 feed the chicks with a hand-feeding formula krmit mláďata směsí na dokrmování
 parents rear their chicks rodiče odchovávají mladé
- clicker** /'kɪkə/ n [ɔ] klikr mechanická výcviková pomůcka vydávající cvakavé zvuky, jimiž se zvířeti signalizuje správné provedení úkonu → clicker training
 respond to a clicker reagovat na klikr
 train the bird with a clicker cvičit ptáka pomocí klikru
clicker training /'kɪkə 'treɪnɪŋ/ n [ɔ] trénink pomocí klikru výcviková metoda, při níž je zvíře motivováno kombinací mechanického zvukového podnětu a odměny → clicker
- cloaca** /kləu'eɪkə/ n [ɔ] (pl cloacae /-eɪki:/) anat. kloaka
 birds rub their cloacae when mating při páření ptáci o sebe třou kloakami
- clutch** /klʌtʃ/ n [ɔ] 1 snůška vajec 2 mláďata z jedné snůšky = brood
 lay a clutch of fertile eggs snést snůšku oplozených vajec
 the first clutch may be infertile první snůška může být neoplozená
 the normal clutch size is 4-6 eggs běžná velikost snůšky je 4-6 vajec
 the number of eggs per clutch počet vajec na snůšku
- cock** /kɒk/ n [ɔ] samec, sameček u ptáků ≠ hen
 use a young Rosella cock for breeding použít mladého samečka rozely do chovu
- Cockatiel** /,kɒkə'ti:l/ korela chocholatá *Nymphicus hollandicus*
- command**¹ /kə'mɑ:nd/ n [ɔ] povel, rozkaz
 fly to one's arm on command přiletět na povel na ruku
 give the parrot the step-up command dát papouškoví povel "Pojd'!"
- command**² /kə'mɑ:nd/ v [ɪ] ~sb to do st přikazovat, dávat povel
 command the parrot to step down dát papouškoví povel "Dolů!"
- Congo African Grey** /'kɒŋɡəʊ 'æfrɪkən greɪ/ žako šedý kongo poddruh žaka šedého *Psittacus erithacus erithacus*
- Crimson Rosella** /'krɪmzən rɒ'zələ/ rozela Penantova *Platyercus elegans*
- crop** /krɒp/ n [ɔ] anat. vole
 empty the crop vyprázdnit vole
 feed the formula into the baby's crop krmit mládě směsí do volete
 have a full crop mít plné vole
 suffer a crop burn utrpět popálení volete
- damage**¹ /'dæmɪdʒ/ n [ɔ] ~to st škoda na čem, poškození čeho
 cause damage to the bird's organs způsobit poškození orgánů ptáka
 damage to wooden furniture škoda na dřevěném nábytku
 fatty diet results in liver damage tučná strava poškozuje játra
- damage**² /'dæmɪdʒ/ v [ɪ] poškozovat, ničit
 prevent birds from damaging each other's feathers zabránit ptákům, aby si navzájem ničili peří
 young pairs can damage their eggs mladé páry mohou ničit svá vejce
- diameter** /daɪ'æmɪtə/ n [ɔ] průměr
 a hole 7 cm in diameter otvor o průměru 7cm
 interior diameter of the nestbox vnitřní průměr budky
 perches that vary in diameter bidla různého průměru
- diet** /'daɪət/ n 1 [ɔ] strava, krmení 2 [ɔ] dieta
 a diet rich in proteins and vitamins strava bohatá na proteiny a vitamíny
 be on a seed/pellet-based diet diet dostávat stravu založenou na zrní/granulích
 feed the birds a high-fat diet krmit ptáky tučnou stravou
 go on a diet začít držet dietu

- provide a well-balanced diet poskytovat vyváženou stravu
- dish** /dɪʃ/ n [C] miska
a stainless steel dish is easy to clean nerezová miska se snadno čistí
equip the cage with a seed dish/water dish vybavit klec miskou na zrní/na vodu
- droppings** /ˈdrɒpɪŋz/ n [C] trus
discover undigested seeds in droppings objevit ne-strávené zrní v trusu
monitor changes in droppings sledovat změny trusu
perches soiled by droppings bidla zašpiněná trusem
watery droppings are a sign of disease vodnatý trus je známkou nemoci
- Eclectus Parrot** /eˈklektəs ˈpærət/ eklektus různobarvý *Eclectus roratus*
- egg** /eg/ n [C] vejce, vajíčko
carry out an egg inspection provádět kontrolu vajec
lay fertile/infertile eggs snášet oplozená/neoplozená vejce
turn eggs in an incubator obracet vejce v inkubátoru
warm eggs in the nest zahřívát vejce v hnízdě
- egg binding** /eg ˈbaɪndɪŋ/ n [U] med. zadržené vejce
die of egg binding uhynout na zadržené vejce
hereditary causes of egg binding dědičné příčiny zadržného vejce
massage the cloaca in egg binding masírovat kloaku při zadržném vejci
- egg tooth** /ˈegtu:θ/ n [C] anat. vaječný zub
the chick uses its egg tooth to puncture the inner shell membrane mládě pomocí vaječného zubu proklovne vnitřní membránu skořápky
- endemic** /enˈdemɪk/ adj ~to st zool. endemický vyskytující se ve specifické geografické oblasti
Kakapos are endemic to New Zealand kakapové se vyskytují na Novém Zélandu
- ethology** /iˈθɒlədʒi/ n [C] etologie nauka o chování zvířat
ethology deals with animal behaviour etologie se zabývá chováním zvířat
seek out an expert in ethology vyhledat odborníka na etologii
- feather** /ˈfeðə/ n [C] pero, brk
pluck out a feather from the tail vytrhnout pero z ocasu
- feathers** /ˈfeðəz/ n [C] peří, opeření
fluffed, curled or dull feathers indicate a sick bird načepýřené, pokroucené nebo matné peří značí nemocného ptáka
parrots preen their feathers daily papoušci si denně probírají peří
- contour feathers** obrysové peří
crest feathers peří chocholky
down feathers prachové peří
- feed**¹ /fi:d/ n 1 [U] krmení, krmivo 2 [C] krmná dávka
a morning feed for the chicks ranní krmná dávka pro mláďata
the diet consists of pelleted feed strava se skládá z granulovaného krmiva
- feed**² /fi:d/ (fed - fed /fed/) v 1 [T] ~sb/st with st | st to sb/st na|krmit, nasytit, dát najíst komu 2 [U] ~on st živit se, krmit se čím
feed birds with varied diet krmit ptáky pestrou stravou
feed pellets to parrots krmit papoušky granulami
feed with a spoon/syringe/tube krmit lžičkou/injekční stříkačkou/sondou
lories feed on nectar loriové se krmí nektarem
- young birds feed all day mládí ptáci se krmí celý den
- fertile** /ˈfɜ:tal/; AmE ˈfɜ:rtl/ adj 1 plodný, schopný reprodukce 2 oplozený ≠ infertile
at one year the hen becomes fertile v roce se samička stává plodnou
lay a clutch of fertile eggs snést snůšku oplozených vajec
- Fischer's Lovebird** /ˈfɪʃəz ˈlʌvbɜ:d/ agapornis fišeri *Agapornis fischeri*
- flight** /flaɪt/ n 1 [U] let, létání 2 [C] výlet voliéry
ready to take flight připraven ke vzletnutí
place the parrot in a flight umístit ptáka do výletu
observe the bird in flight pozorovat ptáka při letu
- flock** /flɒk/ 1 n [C] hejno ptáků 2 jako přívlastek hejnový
be excluded from the flock být vyloučen z hejna
parrots are flock birds papoušci jsou hejnoví ptáci
relationships among the members of the flock vztahy mezi příslušníky hejna
- Great White Cockatoo** /ɡreɪt waɪt ˌkɒkəˈtu: / kakadu bílý *Cacatua alba* = *Umbrella Cockatoo*
- Green-Winged Macaw** /ɡri:nˈwɪŋd məˈko:/ ara zelenokřídlý *Ara chloroptera*
- Grey Parrot** /ɡreɪ ˈpærət/ žako šedý, papoušek šedý *Psittacus erithacus* = African Grey ⇒ Congo African Grey ⇒ Timneh African Grey
- growl** /ɡraʊl/ v [U] vrčít, mručet u větších importovaných papoušků projev strachu
wild-caught Greys growl at humans žakové z odchyty vrčí na lidi
- growth** /ɡrəʊθ/ n [U] růst, nárůst
calcium is necessary for healthy growth of bones pro zdravý růst kostí je nezbytné kalcium
parrots suffering from PBF show abnormal beak/feather growth u papoušků trpících PBF se vyskytuje abnormální růst zobáku/peří
- handfeed** /ˌhændˈfi:d/ (handfed-handfed /-fed/) v [T] ručně odchovávat, ručně dokrmovat mládě → feed
handfed parrots are tamer than parent-raised ones dokrmení papoušci jsou krotší než papoušci odchovaní pod rodiči
handfeed babies with a syringe ručně dokrmovat mláďata injekční stříkačkou
- handfeeding** /ˌhændˈfi:dɪŋ/ n [U] umělý odchov, ruční dokrmování mláďat = hand-rearing
carry out handfeeding in all hatched babies provádět ruční odchov u všech vylíhnutých mláďat
- hand-rearing** /ˌhændˈri:ɪŋ/ n [U] ruční odchov, ruční dokrmování ⇒ handfeeding
- Hawk-headed Parrot** /ˌhɔ:kˈhedɪd ˈpærət/ amazoňan vějířový *Derotypus accipitrinus*
- hatch**¹ /hætʃ/ v 1 [U] líhnout se, vylíhnout se 2 [T] vylézt mládě
babies of this species hatch in 26 days mláďata tohoto druhu se líhnou za 26 dní
the pair hatched a clutch of four pár vylézl čtyři mláďata
- hen** /hen/ n [C] samice u ptáků ≠ cock
an Eclectus hen tends to be aggressive towards the cock samička eklekta bývá vůči samečkovi agresivní
- Hyacinth Macaw** /ˌhaɪəsɪnθ məˈko:/ ara hyacintový *Anodorhynchus hyacinthinus*
- hypersensitivity pneumonitis** /ˌhaɪpəˌsensɪˈtrɪvɪti ˌnju:məˈneɪtɪs/ n [U] med. hypersenzitivní pneumonitida, plíce milovníků ptáků nemoc dýchacího ústrojí vyskytující se u osob pracujících v uzavřených prostorech s ptáky = bird fancier's lung

- contract hypersensitivity pneumonitis due to long-term exposure to birds* onemocnět hypersensitivní pneumonitidou v důsledku dlouhodobého kontaktu s ptáky
- import** /im'pɔ:t/ v[ɪ] dovážet, importovat
import parrots from overseas dovážet papoušky ze zámoří
imported birds have to be quarantined dovezení ptáci musí být karanténováni
- importation** /,impɔ:'teɪʃən/ n[ɪ] dovoz
combat illegal importation of parrots bojovat proti nelegálnímu dovozu papoušků
be involved in controlled importation zabývat se regulovaným dovozem
- incubator** /'ɪŋkjʊbətə/ n[ɪ] inkubátor
set the incubator at 40 degrees Celsius nastavit inkubátor na 40 stupňů Celsia
- infertile** /in'fɜ:taɪl; AmE in'fɜ:rtl/ adj 1 neplodný, neschopný reprodukce 2 neoplozený ≠ *fertile*
infertile eggs should be left in the box with the fertile ones neoplozená vejce by měla být ponechána v budce s oplozenými
exclude infertile birds from the breeding stock vyloučit neplodné ptáky z chovu
- instinct** /'ɪnstɪŋkt/ n[ɪ] pud, instinkt
the birds's instinct is to flee when faced with an intruder setká-li se pták s vetřelcem, instinkt mu velí ulétnout
breeding instinct hnízdní pud
sexual instinct pohlavní pud
- Jardine's Parrot** /'dʒɑ:di:nz 'pærət/ papoušek konžský *Poicephalus guineensis*
- Kakapo** /,kɑ:kɑ:'pəʊ/ kakapo sovi *Strigops habroptilus*
- Kea** /keɪə/ nestor kea *Nestor notabilis* = Mountain Parrot
- keel bone** /'ki:lbeɪn/ n[ɪ] anat. hrudní kost
a prominent keel bone is a sign of an underweight bird vystouplá hrudní kost značí vyhublého ptáka
- keeper** /'ki:pə/ n[ɪ] chovatel, majitel papouška → *breeder*
a keeper may own birds yet never breed them chovatel může ptáky vlastnit, aniž by je rozmnožoval
- Masked Lovebird** /'mɑ:skt 'lʌvbɜ:d/ agapornis škraboškový *Agapornis personata*
- mate**¹ /mɛt/ n[ɪ] partner u chovného páru
attract a mate přilákat partnera
find a suitable mate najít vhodného partnera
the hen accepted her new mate samice nového partnera přijala
- mate**² /mɛt/ v[ɪ] ~ with sb pářit se
Kea cocks mate with several hens samečkové nestora kea se páří s několika samicemi
the birds began to mate immediately ptáci se hned začli pářit
- Moluccan Cockatoo** /'mɒlu:kən ,kɒkə'tu:/ kakadu molucký *Cacatua moluccensis* = Salmon-crested Cockatoo
- moult** AmE *molt* /məʊlt/ v[ɪ] přepeřovat
birds moult before the breeding season ptáci před hnízdní sezónou přepeřují
- Mountain Parrot** /'maʊntən 'pærət/ nestor kea *Nestor notabilis* = Kea
- nest** /nest/ n[ɪ] hnízdo
abandon the nest opustit hnízdo
protect the nest from intruders chránit hnízdo před vetřelci
- remove the chicks from the nest* odebrat mláďata z hnízda
- nest-building parrots** papoušci stavějící hnízda
- nest inspection** kontrola hnízda
- nestbox** /'nestbɒks/ n[ɪ] hnízdní budka
hang a nestbox from the outside of the cage zavěsit hnízdní budku zvenčí klece
hollow out a nestbox vydlabat hnízdní budku
place a camera in the nestbox umístit do hnízdní budky kameru
the cock guards the nestbox sameček střeží hnízdní budku
- Orange-fronted Amazon** /,ɒrɪŋdʒ'frʌntɪd 'æməzən/ amazoňan oranžovokřídlý *Amazona amazonica*
- pair**¹ /peə/ n[ɪ] pár ptáků
acquire a compatible pair of macaws získat kompatibilní pár arů
set up a breeding pair sestavit chovný pár
- pair**² /peə/ v[ɪ] párovat, tvořit páry
pair unrelated birds párovat nepříbuzné ptáky
- parakeet** also **parrakeet** /'pærəki:t/ n[ɪ] papoušek malý dlouhoocasý → *parrot*
most Australian parakeets are aviary birds většina australských papoušků jsou voleroví ptáci
- parrakeet** ⇒ *parakeet*
- parrot** /'pærət/ n[ɪ] 1 papoušek jakýkoli příslušník řádu *Psittaciformes* 2 větší druh papouška např. žako, amazoňan, kakadu atd. → *parakeet*
breeding parrots in captivity chov papoušků v zajetí přispívá k ochraně přírody
large parrots display considerable intelligence velcí papoušci disponují značnou inteligencí
companion parrot papoušek chovaný jako mazlíček
hand-reared parrot ručně odchovaný papoušek
one-person parrot papoušek fixovaný na jednoho člověka
single-kept parrot papoušek chovaný jednotlivě
wild-caught parrot papoušek z odchyty
- parrot-keeping** /'pærət 'ki:pɪŋ/ n[ɪ] chov papoušků = *psittaculture*
be actively involved in parrot-keeping aktivně se věnovat chovu papoušků
consult an expert in parrot-keeping obrátit se na odborníka na chov papoušků
- Patagonian Conure** /,pæto'gəʊnjən 'kɒnjə/ papoušek patagonský *Cyanoliseus patagonus*
- PBFD** ⇒ *Psittacine Beak and Feather Disease*
- PDD** ⇒ *Proventricular Dilatation Disease*
- Peach-faced Lovebird** /,pi:tʃ'feɪst 'lʌvbɜ:d/ agapornis růžohrdlý *Agapornis roseicollis*
- pellets** /'pelɪts/ n[ɪ] granule
a balanced diet consists of pellets, seeds and greens vyvážená strava se skládá z granulí, zrnin a zeleného krmiva
feed adult birds with pellets krmit dospělé ptáky granulemi
- perch**¹ /pɜ:tʃ/ n[ɪ] bidlo, bidélko
fit the cage with perches of various diameters vybavit klec bidly různého průměru
hop from perch to perch skákat z bidla na bidlo
perches made of natural branches prevent claw overgrowth bidla z přírodních větví zabraňují přerůstání drápků
- perch**² /pɜ:tʃ/ v[ɪ] sedět na bidle
chicks are able to perch after leaving the nestbox

- mládata umí po vylétnutí z budky sedět na bidélku
playgym /'pleɪdʒɪm/ n [C] ptačí strom stojan s hračkami
 sloužící k zabavení papouška
spend out-of-cage time on a playgym trávit čas mimo klec na ptačím stromě
- Proventricular Dilatation Disease (PDD)**
 /,prəven'trɪkjələ ,daɪlə'teɪʃən dɪ'zi:z/ n [U] med. syndrom dilatace žláznatého žaludku (PDD)
birds suffering from PDD cannot digest food ptáci trpící PDD nedokážou trávit potravu
- psittacine** /'psɪtəsain/ adj papouščí, týkající se papoušků
psittacine feathers are of four kinds existují čtyři druhy papouščího peří
- Psittacine Beak and Feather Disease (PBFDF)**
 ('psɪtəsain bi:k ənd 'feðə drɪ'zi:z/ n [U] med. papouščí nemoc peří a zobáku (PBFDF), cirkoviróza, infml francouzské pelichání virové onemocnění způsobující deformaci peří a zobáku
be positive/negative for PBFDF být PBFDF pozitivní/negativní
have the birds tested for PBFDF nechat ptáky otestovat na PBFDF
- psittacosis** /,psɪtə'kəʊsɪs/ n [U] med. psitakóza, chlamydióza, infml papouščí nemoc
psittacosis is a highly contagious disease transferable to humans psitakóza je vysoce nakažlivá nemoc přenosná na člověka
- psittaculture** /,psɪtə'kʌltʃə/ fml n [U] chov papoušků
 ⇒ parrot-keeping
- quarantine**¹ /'kwɒrənti:n/ n [U] karanténa
place a bird in quarantine umístit ptáka do karantény
the minimum quarantine period is 30 days minimální doba karantény je 30 dní
- quarantine**² /'kwɒrənti:n/ v [T] karanténovat, umístit do karantény
we quarantine every newly-acquired bird karanténujeme každého nově získaného ptáka
- Rainbow Lorikeet** /'reɪnbəʊ 'lɒrɪki:t/ lori mnohoobarvý *Trichoglossus haematodus*
- rear** /rɪə/ v [T] odchovávat, vyvádět potomstvo
parents rear their chicks rodiče odchovávají mladé
rear parrots by hand odchovávat papoušky ručně
- remex** /'ri:meks/ (pl remiges /'remɪdʒi:z/) n [C] anat. letka
some keepers clip their parrots' remiges někteří chovatelé zastřihávají svým papouškům letky
- require** /rɪ'kwaɪə/ v [T] požadovat, vyžadovat
parrots require attention from their owners papoušci od svých majitelů vyžadují pozornost
require round-the-clock care vyžadovat neustálou péči
- requirement** /rɪ'kwaɪəmənt/ n [C] požadavek, nárok
meet the basic requirements of parrots splnit základní nároky papoušků
cage requirements nároky na klec
food requirements nároky na krmení
space requirements nároky na prostor
- Ringneck Parakeet** /'rɪŋnek 'pærəki:t/ alexander malý *Psittacula krameri*
- Salmon-crested Cockatoo** /,sæmən'krest'd ,kɒkə'tu:/ kakadu molucký *Cacatua moluccensis* = Moluccan Cockatoo
- Scarlet Macaw** /'ska:lət mə'ko:/ ara arakanga *Ara macao*
- seeds** /si:dz/ n [C] pl zrní, zrniny, semena
feed seeds as a main diet podávat semena jako hlavní potravu
sunflower seeds are rich in oil slunečnicová semena jsou bohatá na olej
- sex**¹ /seks/ n [C/U] pohlaví
birds of the same/opposite sex ptáci stejného/opačného pohlaví
- sex**² /seks/ v [T] určovat pohlaví
sex birds without surgery určovat pohlaví ptáků nechirurgicky
- sexing** /'seksɪŋ/ n [U] určování pohlaví
sexing should be performed by a specialist určování pohlaví by měl provádět odborník
blood feather sexing určování pohlaví z pera
DNA sexing určování pohlaví z DNA
surgical sexing určování pohlaví endoskopií
- sexual dimorphism** /'seksʃuəl daɪ'mɔ:fɪzəm/ n [U] zool. pohlavní dimorfismus různost vzhledu u samce a samice ≠ sexual monomorphism
sexual dimorphism is most pronounced in Eclectus parrots pohlavní dimorfismus je nejvýraznější u eklektů
- sexual monomorphism** /'seksʃuəl ,mɒnəʊ'mɔ:fɪzəm/ n [U] zool. pohlavní monomorfismus stejnost vzhledu u obou pohlaví ≠ sexual dimorphism
most parrot species display sexual monomorphism většina druhů papoušků se vyznačuje pohlavním monomorfismem
- socialization** /,səʊʃəlaɪ'zeɪʃən/ n [U] socializace, začlenění do hejna
lack of early socialization leads to behavioural problems nedostatek rané socializace vede k problémům s chováním
- socialize** /'səʊʃəlaɪz/ v 1 [U] seznámit se, sžít se, navázat vztah 2 [T] socializovat, začlenit mezi ostatní ptáky
let the newly-introduced birds socialize nechat nově seznámené ptáky, aby se sžili
poorly/well socialized bird nedostatečně/dobře socializovaný pták
- species** /'spi:ʃi:z/ (pl species) n [C] zool. druh papouška
the budgie is a species popular for its sociable nature andulka je druh oblíbený pro svou společenskou povahu
several parrot species are near-extinct několik druhů papoušků je na pokraji vyhynutí
- subspecies** /,sʌb'spi:ʃi:z/ (pl subspecies) n [C] zool. poddruh
individual subspecies should be bred separately jednotlivé poddruhy by měly být rozmnožovány odděleně
- Sulphur-crested Cockatoo** /,sʌlfə'restɪd ,kɒkə'tu:/ kakadu žlutočechelatý *Cacatua galerita*
- Sun Conure** /sʌn 'kɒnjə/ aratinga zlatý *Aratinga solstitialis*
- sunlight** /'sʌnlɑ:t/ n [U] sluneční světlo, slunce
exposed to direct sunlight vystavený přímému slunci
protected/sheltered from sunlight chráněný před sluncem
- talker** /'tɔ:kə/ n [C] řečník, mluvící pták
be an excellent/moderate/poor talker být nadaný/průměrný/málo nadaný řečník
males make better talkers than females samečkové bývají nadanější na mluvení než samičky
- Timneh African Grey** /'tɪmni 'æfrɪkən greɪ/ žako šedý liberijský poddruh žaka šedého *Psittacus erithacus timneh*
- toy** /tɔɪ/ n [C] hračka

- provide birds with plastic/wooden toys* poskytnout ptákům plastové/dřevěné hračky
- travelling bird** /'trævəliŋ bɜ:d/ n[C] *slang* putovní pták chovu neschopný jedinec střídající majitele
avoid the purchase of a travelling bird vyhnout se zakoupení putovního ptáka
- Turquoise Grass Parakeet** /'tɜ:kwoɪz grɑ:s 'pærəki:t; *AmE* -græs-/ neoféma tyrkysová *Neophema pulchella*
- Umbrella Cockatoo** /ʌm'brelə ,kɒkə'tu:/ kakadu bílý *Cacatua alba* = **Great White Cockatoo**
- veterinarian** /,vetəri'neəriən/; *informal* **vet** /vet/ n[C] veterinář
consult a veterinarian poradit se s veterinářem
seek out a veterinarian vyhledat veterináře
avian veterinarian aviární veterinář, veterinář specializovaný na ptáky
- White-bellied Caique** /,waɪt'beli:d kaɪ'i:k/ amazonek bělobřichý *Pionites leucogaster*
- White-fronted Amazon** /,waɪt'frʌntɪd 'æməzən/ amazoňan běločelý *Amazona albifrons*
- wild-caught** /'waɪldkɔ:t/ *adj* odchyťový, odchycený v divočině
wild-caught birds are more timid than domestic-bred ones ptáci z odchytu jsou plašší než ptáci odchovaní v zajetí
- wire mesh** /waɪə 'meʃ/ n[U] pletivo
build an aviary from zinc-coated/stainless steel wire mesh vyrobit voliéru z pozinkovaného/nerezového pletiva
- wood shavings** /,wud'ʃeɪvɪŋz/ n[C] hobliny
lay the nestbox with wood shavings vystlat hnízdní budku hoblinami
- Yellow-fronted Amazon** /,jeləʊ'frʌntɪd 'æməzən/ amazoňan žlutohlavý *Amazona ochrocephala*
- zinc poisoning** /zɪŋk 'pɔɪzənɪŋ/ n[U] *med.* otrava zinkem
- chewing cage bars can lead to zinc poisoning* oklo-
vávání mříží klece může způsobit otravu zinkem

A.9 Česko-anglický slovník chovu papoušků

- agapornis fišeri** Fischer's Lovebird /'fiʃəz 'lʌvbɜ:d/ *Agapornis fischeri*
- agapornis růžohrdlý** Peach-faced Lovebird /,pi:tʃeɪst 'lʌvbɜ:d/ *Agapornis roseicollis*
- agapornis škraboškový** Masked Lovebird /,mɑ:skt 'lʌvbɜ:d/ *Agapornis personata*
- alexander malý** Ringneck Parakeet /'rɪŋnek 'pærəki:t/ *Psittacula krameri*
- Alexander velký** Alexandrine Parakeet /,ælg'zændrɪn 'pærəki:t/ *Psittacula eupatria*
- amazonian běločelý** White-fronted Amazon /,waɪt'frʌntɪd 'æməzən/ *Amazona albifrons*
- amazonian modročelý** Blue-fronted Amazon /,blu:'frʌntɪd 'æməzən/ *Amazona aestiva*
- amazonian oranžovokřídý** Orange-fronted Amazon /,ɔrɪndʒ'frʌntɪd 'æməzən/ *Amazona amazonica*
- amazonian vějířový** Hawk-headed Parrot /,hɔ:k'hedɪd 'pærət/ *Derotypus accipitrinus*
- amazonian zlutohlavý** Yellow-fronted Amazon /,jeləʊ'frʌntɪd 'æməzən/ *Amazona ochrocephala*
- amazónek bělobřichý** White-bellied Caique /,waɪt'belɪ:d kaɪ'ɪ:k/ *Pionites leucogaster*
- amazónek černotemenný** Black-headed Caique /,blæk'hedɪd kaɪ'ɪ:k/ *Pionites melanocephala*
- amazónek modrohlavý** Blue-headed Parrot /,blu:'hedɪd 'pærət/ *Pionus menstruus*
- andulka vlnkovaná** Budgerigar /'bʌdʒɪrɪgɑ:/, ɪn'fɪml budgie /bʌdʒi:/ *Melopsittacus undulatus*
- ara arakanga** Scarlet Macaw /'skɑ:lət mə'ko:/ *Ara macao*
- ara ararauna** Blue and Gold Macaw /,blu:ænd'gəʊld mə'ko:/ *Ara ararauna*
- ara hyacintový** Hyacinth Macaw /'haɪəsɪnθ mə'ko:/ *Anodorhynchus hyacinthinus*
- ara zelenokřídý** Green-winged Macaw /,grɪ:n 'wɪŋd mə'ko:/ *Ara chloroptera*
- aratinga zlatý** Sun Conure /sʌn 'kɔnjə/ *Aratinga solstitialis*
- aspergilóza** med. nemoc dýchacího ústrojí aspergillosis /,æspədʒɪ'ləʊsɪs/ n [U] papoušci konžští jsou náchylní vůči aspergilóze Jardine's Parrots are prone to aspergillosis
- baktérie** pl bacteria /bæk'tɪəriə/ n [C] pl (sg. bacterium /-iəm/) baktérie se množí ve starém krmení bacteria proliferate in stale food
- bidlo** perch /pɜ:tʃ/ n [C] bidla z přírodních větví zabraňují přerůstání drápků perches made of natural branches prevent claw overgrowth skákat z bidla na bidlo hop from perch to perch vybavit klec bidly různého průměru fit the cage with perches of various diameters
- cirkoviróza** ⇒ papouščí nemoc peří a zobáku
- dovážet** import /ɪm'pɔ:t/ v [T] dovážet papoušky ze zámoří import parrots from overseas dovezení ptáci musejí být karanténováni imported birds have to be quarantined
- dovoz** importation /,ɪmpɔ:'teɪʃən/ n [U] bojovat proti nelegálnímu dovozu papoušků combat illegal importation of parrots zabývat se regulovaným dovozem be involved in controlled importation
- druh** papouška zool. species /'spi:ʃi:z/ (pl species) n [C] andulka je druh obklbený pro svou společenskou povahu the budgie is a species popular for its sociable nature několik druhů papoušků je na pokraji vyhubení several parrot species are near-extinct
- eklektus různobarvý** Eclectus Parrot /e'klektəs 'pærət/ *Eclectus roratus*
- endemický** zool. vyskytující se ve specifické geografické oblasti endemic /en'demɪk/ adj ~to st kakapové se vyskytují na Novém Zélandu Kakapos are endemic to New Zealand
- etologie** nauka o chování zvířat ethology /i'θɒlədʒi/ n [C] etologie se zabývá chováním zvířat ethology deals with animal behaviour vyhledat odborníka na etologii seek out an expert in ethology
- francouzské pelichání** ⇒ papouščí nemoc peří a zobáku
- granule** pellets /'pelts/ n [C] pl krmit dospělé ptáky granulemi feed adult birds with pellets vyvážená strava se skládá z granulí, zrnin a zeleného krmiva a balanced diet consists of pellets, seeds and greens
- hejno** flock /flɒk/ n [C] být vyloučen z hejna be excluded from the flock vztahy mezi příslušníky hejna relationships among the members of the flock
- hejnový** flock adj papoušci jsou hejnoví ptáci parrots are flock birds
- hnízdění** breeding /'brɪ:dnɪŋ/ n [U], nesting /'nestɪŋ/ n [U] pták vhodný k hnízdění a bird suitable for breeding/nesting stimulovat pár k hnízdění stimulate the pair to breed
- hnízdít** breed /bri:d/ (bred – bred /bred/) v [U], nest /nest/ v [U] andulky hnízdí několikrát do roka budgies breed several times a year papoušci hnízdí v dutinách stromů parrots nest in tree cavities
- hnízdo** nest /nest/ n [C] chránit hnízdo před vetřelci protect the nest from intruders odebrat mláďata z hnízda remove the chicks from the nest opustit hnízdo abandon the nest kontrola hnízda nest inspection papoušci stavějící si hnízda nest-building parrots hnízdění budka nestbox /'nestbɒks/ n [C] sameček stráží hnízdění budku the cock guards the nestbox umístit do hnízdění budky kameru place a camera in the nestbox vydlabat hnízdění budku hollow out a nestbox zavěsit hnízdění budku zvenčí klece hang a nestbox from the outside of the cage
- hoblíny** wood shavings /,wʊd'ʃeɪvɪŋz/ n [C] pl vystlat hnízdění budku hoblinami lay the nestbox with

- wood shavings
- hračka** toy /tɔi/ n[C]
poskytnout ptákům plastové/dřevěné hračky provide birds with plastic/wooden toys
- hrudní kost** anat. keel bone /'ki:ləʊn/ n[C]
vystoupilá hrudní kost značí vyhublého ptáka a prominent keel bone is a sign of an underweight bird
- hypersenzitivní pneumonitida** med. nemoc dýchacího ústrojí postihující osoby pracující v uzavřených prostorech s ptáky hypersensitivní pneumonitis /,haɪpə'sens'tɪvntɪ ,nju:mə'naitɪs/ n[U], infml bird-fancier's lung /,bɔ:d 'fænsɪəz laɪ/ n[U]
nemocnět hypersenzitivní pneumonitidou v důsledku dlouhodobého kontaktu s ptáky contract hypersensitivity pneumonitis due to long-term exposure to birds
- chlamydióza** ⇒ psittakóza
- chov papoušků** parrot-keeping /'pærət 'ki:piŋ/ n[U], fml psittaculture /,psɪtə'kʌltʃə/ n[U]
aktivně se věnovat chovu papoušků be actively involved in parrot-keeping
obrátit se na odborníka na chov papoušků consult an expert in psittaculture
- chov plectva** aviculture /'eɪvɪkʌltʃə/ n[U]
být obeznámen s právními aspekty chovu plectva be familiar with legal aspects of aviculture
provázet komerční chov plectva practice commercial aviculture
(po)radit se s odborníkem na chov plectva consult an expert in aviculture
- chovatel** 1 rozmnožující ptáky breeder /'bri:də/ n[C] 2 majitel papouška keeper /'ki:pə/ n[C]
buy young birds from an experienced breeder nakupovat mladé ptáky u zkušeného chovatele
some keepers treat their pets as family members někteří chovatelé považují své miláčky za členy rodiny
- chovný pár** breeding pair /'bri:diŋ peə/ n[C]
chovný pár přijal budku the breeding pair have accepted the box
sestavit chovný pár set up a breeding pair
- chovný pták** breeder bird /'bri:də bɜ:d/ n[C]
všichni naši chovní ptáci jsou otestováni na PBFĐ all of our breeder birds have been tested for PBFĐ
- chuť** k jídlu appetite /'æpɪtaɪt/ n[C/U]
mít zdravou chuť k jídlu have a healthy appetite
(pro)jevit nárůst/pokles chuti k jídlu show an increase/decrease in appetite
ztratit chuť k jídlu lose appetite
- inkubátor** incubator /'ɪŋkjubeɪtə/ n[C]
nastavit inkubátor na správnou teplotu set up the incubator at the proper temperature
udržovat v inkubátoru teplotu maintain the temperature in the incubator
umístit vejce do inkubátoru place eggs in an incubator
- instinkt** ⇒ pud
- kakadu bílý** Great White Cockatoo /greɪt waɪt ,kɒkə'tu:/, Umbrella Cockatoo /ʌm'brelə ,kɒkə'tu:/ *Cacatua alba*
- kakadu molucký** Salmon-crested Cockatoo /,sæmən'krestɪd ,kɒkə'tu:/, Moluccan Cockatoo /'mɒlu:kən ,kɒkə'tu:/ *Cacatua moluccensis*
- kakadu žlutočeláť** Sulphur-crested Cockatoo /,sʌlfə'restɪd ,kɒkə'tu:/ *Cacatua galerita*
- kakapo soví** Kakapo /,kɑ:kə'pəʊ/ *Strigops habroptilus*
- karanténa** quarantine /kwɔrənti:n/ n[U]
minimální doba karantény je 30 dní the minimum quarantine period is 30 days
umístit ptáka do karantény place a bird in quarantine
- karanténovat** quarantine /'kwɔrənti:n/ v[T]
karanténujeme každého nově získaného ptáka we quarantine every newly-acquired bird
- klec** cage /keɪdʒ/ n[C]
dopřát ptákovi pravidelný pobyt mimo klec allow the bird regular out-of-cage time
držet ptáka v prostorné kleci house the bird in a roomy cage
vybavit klec bezpečným mechanismem zavírání dveří fit the cage with a safe door locking mechanism
bednová klec box cage
celodráťená klec all-wire cage
nemocniční klec hospital cage
pokožová klec indoor cage
přepravní klec keepport cage
- klikr** mechanická výcviková pomůcka vydávající cvakavé zvuky, jimiž se zvířeti signalizuje správné provedení úkonu clicker /'kli:kə/ n[C]
reagovat na klikr respond to a clicker
cvičit ptáka pomocí klikru train a bird with a clicker
výcvik pomocí klikru clicker training
- kloaka** anat. cloaca /kləʊ'eɪkə/ (pl. cloacae /-eɪki:/) n[C]
při páření ptáci o sebe třou kloakami birds rub their cloacae when mating
- kód chovatele** (na kroužku) breeder code /'bri:də kəʊd/ n[C]
identifikovat ptáka pomocí kódu chovatele identify a bird by means of the breeder code
kód chovatele sestává ze tří písmen the breeder code consists of three letters
- korela chocholatá** Cockatiel /,kɒkə'ti:l/ *Nymphicus hollandicus*
- krmit** feed /fi:d/ (fed – fed /fed/) v[T] ~sb/st with st | st to sb/st
krmit papoušky granulemi feed pellets to parrots
krmit ptáky pestrá strava feed birds with a varied diet
krmit lžičkou/injekční stříkačkou/sondou feed with a spoon/syringe/tube
- krmit se** _{zim} feed /fi:d/ (fed – fed /fed/) v[U] ~on st
loriové se krmí nektarem lorries feed on nectar
mladí ptáci se krmí celý den young birds feed all day
- krmivo** food /fu:d/ n[U], feed /fi:d/ n[C/U]
strava se skládá z granulovaného krmiva the diet consists of pelleted feed
zelené krmivo je nezbytné pro zdraví ptáka green food is essential for a bird's well-being
- kroužek** _{sloužící k identifikaci ptáka} band /bænd/ n[C]
identifikovat ptáka pomocí kroužku identify a bird using the band
odstranit kroužek z nohy remove the band from the leg
zabránit vyvoléknutí kroužku prevent the band from falling off the leg
číslo kroužku band number
otevřený kroužek open band
uzavřený kroužek closed band
- kroužkovat** ptáky band /bænd/ v[U/T]
kroužkovat týden po vyhlášení band a week after hatching
kroužkovat mladé uzavřeným kroužkem band chicks with a closed band
- let** flight /flaɪt/ n[U]

- bránit v letu* inhibit flight
pozorovat ptáka při letu observe the bird in flight
připraven k letu ready to take flight
- letka** *anat.* remex /'ri:meks/ (pl remiges /'remidzi:z/) n[C]
některí chovatelé zastřihávají svým papouškům letky
some keepers clip their parrots' remiges
- líheň** ⇒ *umělá líheň*
- líhnout se** hatch /hætʃ/ v[1]
mláďata tohoto druhu se líhnou za 26 dní babies of this species hatch in 26 days
snůška se má líhnout za týden the clutch is due to hatch in a week
- lori mnohobarvý** Rainbow Lorikeet /'reɪnbəʊ 'lɒrɪki:t/ *Trichoglossus haematodus*
- Lori tříbarvý** Black-capped lori /'blæk'kæpt 'lɒrɪ/ *Lorius lory*
- milovník ptačtva** bird fancier /'bɜ:d 'fænsiə/ n[C]
stát se nadšeným/uznávaným milovníkem ptačtva become a keen/respected bird fancier
- miska** dish /dɪʃ/ n[C]
neruzová miska se snadno čistí a stainless steel dish is easy to clean
vybavit klec miskou na zrní/na vodu provide the cage with a seed dish/water dish
- mládě** *papouška* chick /tʃɪk/ n[C], baby /'beɪbi/ n[C]
koupit zcela opeřené/tříměsíční mládě buy a fully-feathered/three-month-old chick
mláďata kakaduů jsou velmi přítulná cockatoo babies are very cuddly
rodiče odchovávají mláďata parents rear their chicks
- mříž** bar /bɑ:/ n[C]
krmit papouška přes mříže klece feed a parrot through cage bars
rozteč mříží bar spacing
svíslé mříže vertical bars
vodorovné mříže horizontal bars
- nárok** /rɪ'kwɑɪəmənt/ n[C]
splnit základní nároky papoušků meet the basic requirements of parrots
nároky na klec cage requirements
nároky na krmení food requirements
nároky na prostor space requirements
- neoféma tyrkysová** Turquoise Grass Parakeet /'tɜ:kwoɪz grɑ:s 'pærəki:t/; *AmE* -græs-/ *neoféma tyrkysová* *Neophema pulchella*
- neoplozený** infertile /ɪn'fɜ:taɪl/; *AmE* ɪn'fɜ:rtl/ adj ≠ fertile
neoplozená vejce by měla být ponechána v budce s oplozenými infertile eggs should be left in the box with fertile ones
- nestor kea** Kea /keɪə/, Mountain Parrot /'maʊntən 'pærət/ *Nestor notabilis*
- nuda** boredom /'bɔ:dəm/ n[1]
předcházet poruchám způsobeným nudou prevent disorders caused by boredom
sebeпоškozovat se z nudy self-mutilate out of boredom
trpět nudou suffer from boredom
zahnat nudu poskytnutím hraček relieve boredom by providing toys
- obchod s ptáky** bird trade /'bɜ:dtreɪd/ n[C]
být zapojen do regulovaného/nelegálního obchodu s ptáky be involved in controlled/illegal bird trade
- odchovávat** 1 *chovatel ptáky* breed /'bri:d/ (bred – bred) v[1], 2 *rodiče mládě* rear /rɪə/ v[1]
odchováváme vzácné druhy papoušků we breed rare parrot species
rodiče odchovali tři mláďata the parents reared three chicks
- odchytový** wild-caught /'waɪldkɔ:t/ adj
odchytoví ptáci jsou plašší než ptáci odchovaní v zajetí wild-caught birds are more timid than domestic-bred ones
- oplozený** fertile /'fɜ:taɪl/; *AmE* 'fɜ:rtl/ adj ≠ infertile
lay a clutch of fertile eggs snést snůšku oplozených vajec
- otrava zinkem** *med.* zinc poisoning /zɪŋk 'pɔɪzənɪŋ/ n[1]
oklovávání mříží klece může způsobit otravu zinkem
chewing cage bars can lead to zinc poisoning
- papouščí** psittacine /'psɪtəsəm/ adj
papouščí peří se skládá ze čtyř druhů psittacine feathers consist of four types
- papouščí nemoc peří a zobáku (Pbfd)** *virové onemocnění způsobující deformaci peří a zobáku med.* Psittacine Beak and Feather Disease (Pbfd) /'psɪtəsəm bi:k ənd 'feðə drɪ:z/ n[1]
být Pbfd pozitivní/negativní be positive/negative for Pbfd
nechat ptáky otestovat na Pbfd have the birds tested for Pbfd
- papoušek 1** parrot /'pærət/ n[C], 2 *malý dlouhoocasý parakeet* /'pærəki:t/ n[C]
velcí papoušci projevují značnou inteligenci large parrots display considerable intelligence
většina malých papoušků se dobře rozmnožuje most parakeets are easy to breed
- papoušek chovaný jako mazlíček** companion parrot, pet parrot
papoušek chovaný jednotlivě single-kept parrot
papoušek upnutý na jednoho člověka one-person parrot
papoušek z odchyty wild-caught parrot
ručně dokrmený papoušek hand-fed parrot, hand-reared parrot
- papoušek kapský** Cape Parrot /keɪp 'pærət/ *Poicephalus robustus*
- papoušek konžský** Jardine's Parrot /'dʒɑ:di:nz 'pærət/ *Poicephalus gularis*
- papoušek patagonský** Patagonian Conure /'pæʊtə'gəʊnɪən 'kɒnjə/ *Cyanoliseus patagonus*
- pár** *ptáků* pair /peə/ n[C]
pár vyvedl pět mladých the pair have reared five chicks
sestavit chovný pár set up a breeding pair
získat kompatibilní pár arů acquire a compatible pair of macaws
- párovat** pair /peə/ v[1]
párovat nepříbuzné ptáky pair unrelated birds
- partner** *u chovného páru* mate /meɪt/ n[C]
najít vhodného partnera find a suitable mate
přilákat partnera attract a mate
samice nového partnera přijala the hen accepted the new mate
- pářit se** mate /meɪt/ v[1] ~with sb
samečkové nestora kea se páří s několika samicemi
Kea cocks mate with several hens
ptáci se hned začli pářit the birds began to mate immediately
- Pbfd** ⇒ *papouščí nemoc peří a zobáku*
- PDD** ⇒ *dilatace žláznatého žaludku*
- pero** feather /'feðə/ n[C]
vytrhnout pero z ocasu pluck out a feather from the

- tail
- peří** feathers /'feðəz/ n[C]pl
načepýřené, pokroucené nebo matné peří značí nemocného ptáka fluffed, curled or dull feathers indicate a sick bird
papoušci si denně probírají peří parrots preen their feathers daily
obrysové peří contour feathers
peří chocholky crest feathers
prachové peří down feathers
- pletivo** wire mesh /,waɪə 'meʃ/ n[U]
vyrobít voliéra z nerezového/pozinkovaného pletiva build an aviary from stainless steel/zinc-coated wire mesh
- plíce milovníků ptáků** ⇒ hypersensitivní pneumonitida
- poddruh** zool. subspecies /,sʌb'spi:ʃi:z/ (pl subspecies) n[C]
jednotlivé poddruhy by měly být rozmnožovány odděleně individual subspecies should be bred separately
- pohlaví** sex /seks/ n[C/U]
pohlaví ptáka (ne) lze určit podle vzhledu a bird's sex can(not) be determined by appearance
ptáci stejného/opačného pohlaví birds of the same/opposite sex
- pohlavní dimorfismus** různost vzhledu u samce a samice zool. sexual dimorphism /'seksfjuəl daɪ'mo:ʃizəm/ n[U]
pohlavní dimorfismus je nejvýraznější u eklektů sexual dimorphism is the most pronounced in Eclectus parrots
- pohlavní monomorfismus** stejnost vzhledu u obou pohlaví zool. sexual monomorphism /'seksfjuəl ,mɒnəʊ'mo:ʃizəm/ n[U]
většina druhů papoušků se vyznačuje pohlavním monomorfismem most parrot species display sexual monomorphism
- poškození** damage /'dæmɪdʒ/ n[U] ~to st
tučná strava vede k poškození játer fatty diet results in liver damage
způsobit poškození orgánů ptáka cause damage to the bird's organs
- poškozovat** damage /'dæmɪdʒ/ v[Ť]
mladé páry mohou poškozovat svá vejce young pairs can damage their eggs
zabránit ptákům, aby si navzájem poškozovali peří prevent birds from damaging each other's feathers
- pouto** citový vztah bond /bɒnd/ n[C]
úzké pouto mezi párem a close bond between the pair
vytvořit si pouto k chovateli form a bond with the keeper
- povel** command /kə'mɑ:nd/ n[C]
dát ptákovi povel "Pojd!" give the bird the step-up command
přiletět na povel na ruku fly to one's arm on command
- průměr** diameter /daɪ'æmɪtə/ n[C]
bidla různého průměru perches that vary in diameter
otvor o průměru 7 cm a hole 7 cm in diameter
vnitřní průměr budky interior diameter of the nest-box
- přepeřovat** moult, AmE molt /məʊlt/ v[U]
ptáci před hnízdní sezónou přepeřují birds moult before the breeding season
- přikazovat** komu co command /kə'mɑ:nd/ v[Ť] ~sb to do st
přikazovat papouškovi, aby sesedl command the parrot to step down
- přilnout** ke komu bond /bɒnd/ v[U/Ť] ~ with/to sb
mládě přilne k člověku a baby bird will bond to a human
pár k sobě ihned přilnul the pair bonded immediately
žakové obvykle přilnou k jednomu členu rodiny Greys tend to bond with one family member
- přípevnit** co k čemu/na co attach /ə'tætʃ/ v[Ť] ~ st to/on st
přípevnit budku zvenčí klece attach the box to the outside of the cage
přípevnit pletivo pomocí šroubů use screws to attach the wire mesh
- psitakóza** med. psittacosis /,psɪtə'kəʊsɪs/ n[U] = chlamydióza
psitakóza je vysoce nakažlivá nemoc přenosná na člověka psittacosis is a highly contagious disease transferable to humans
- ptačí strom** stojan s hračkami sloužící k zabavení papouška playgym /'pleɪdʒɪm/ n[C]
trávit čas mimo klec na ptačím stromě spend out-of-cage time on a playgym
- pud** instinct /'ɪnstɪŋkt/ n[C]
přirozeným pudem ptáka je najít si jednoho partnera a bird's natural instinct is to find one mate
- hnízdni pud** breeding instinct
- pohlavní pud** sexual instinct
- putovní pták** chovu neschopný jedinec střídající majitele slang travelling bird /'trævəlɪŋ bɜ:d/ n[C]
vyhnout se zakoupení putovního ptáka avoid the purchase of a travelling bird
- rozela Penantova** Crimson Rosella /'krɪmzɪn rɒ'zələ/ *Platycercus elegans*
- ručně dokrmovat** mláďata hand-feed /,hænd'fi:d/ (handfed-handfed /-fed/) v[Ť], hand-rear /,hænd'riə/ v[Ť]
ručně dokrmovat mláďata injekční stříkačkou hand-feed babies with a syringe
všechna naše mláďata jsou ručně dokrmená all our babies are hand-reared
- ruční dokrmování** hand-feeding /,hænd'fi:dɪŋ/ n[U], hand-rearing /,hænd'ri:ɪŋ/ n[U]
provádět ruční dokrmování u všech vylíhnutých mláďat carry out handfeeding in all hatched babies
- růst** growth /grəʊθ/ n[U]
pro zdravý růst kostí je nezbytné kalcium calcium is necessary for healthy growth of bones
u papoušků trpících PBFĐ se vyskytuje abnormální růst zobáku/peří parrots suffering from PBFĐ show abnormal beak/feather growth
- řečník** mluvící pták talker /'tɔ:kə/ n[C]
být nadaný/ průměrný/málo nadaný řečník be an excellent/moderate/poor talker
samečkové bývají nadanější řečníci než samičky males make better talkers than females
- sameček** ptáků cock /kɒk/ n[C], male /meɪl/ n[C]
použít mladého samečka rozely do chovu use a young Rosella cock for breeding
v době páření jsou samečci agresivní males are aggressive during the breeding season
- samička** ptáků hen /hen/ n[C], female /'fi:meɪl/ samička eklektá bývá vůči samečkovi agresivní an Eclectus hen tends to be aggressive towards the cock
- semena** seeds /si:dz/ n[C]pl
podávat semena jako hlavní potravu feed seeds as a main diet
slunečnicová semena jsou bohatá na olej sunflower

- seeds are rich in oil
- slunce** sluneční světlo sunlight /'sʌnlʌnt/ n [U]
chráněný před sluncem protected/sheltered from sunlight
vystavený přímému slunci exposed to direct sunlight
- snůška** vajíec clutch /klatʃ/ n [C]
pár snesl první snůšku the pair laid its first clutch
počet vajec na snůšku the number of eggs per clutch
snůška oplozených vajec a clutch of fertile eggs
- socializace** začlenění do hejna socialization
/ˌsəʊʃəlaɪ'zeɪʃən/ n [U]
nedostatek rané socializace vede k problémům s chováním lack of early socialization leads to behavioural problems
- socializovaný** socialized /'səʊʃəlaɪzd/ n [U]
dobře/špatně socializovaný pták well/poorly socialized bird
- socializovat** začlenit jedince mezi ostatní ptáky socialize
/ˌsəʊʃəlaɪz/ v [T]
je důležité ptáky socializovat od útlého věku it is important to socialize birds from an early age
- strava** diet /'daɪət/ n [C]
dostávat stravu založenou na zrní/granulích be on a seed/pellet-based diet
krmit ptáky tučnou stravou feed the birds a high-fat diet
poskytovat vyváženou stravu provide a balanced diet
strava bohatá na proteiny a vitamíny a diet rich in proteins and vitamins
- syndrom dilatace žláznatého žaludku (PDD)** med. Proventricular Dilatation Disease (PDD)
/ˌprəven'trɪkʃələ ˌdaɪlə'teɪʃən dɪ'zɪ:z/ n [U]
ptáci trpící PDD nedokážou trávit potravu birds suffering from PDD cannot digest food
- trus** droppings /'drɒpɪŋz/ n [C]pl
bidla zašpiněná trusem perches soiled by droppings
objevit nestrávené zrní v trusu discover undigested seeds in droppings
sledovat změny trusu monitor changes in droppings
vodnatý trus je známkou nemoci watery droppings are a sign of disease
- umělá líheň** brooder /'bru:ðə/ n [C]
udržovat v umělé líhni teplotu maintain temperature in the brooder
nastavit umělou líheň na správnou teplotu set up the brooder at the proper temperature
- únava chovatelů** vyčerpanost z chovu většího množství ptáků, zejména v období hnízdění slang breeder fatigue /'bri:ðə fə'ti:g/ n [U]
snížit počet chovných ptáků z důvodu únavy chovatelů reduce breeding stock due to breeder fatigue
trpět únavou chovatelů suffer from breeder fatigue
- určování pohlaví** sexing /'seksɪŋ/ n [U]
určování pohlaví by měl provádět odborník sexing should be performed by a specialist
určování pohlaví endoskopii surgical sexing
určování pohlaví z DNA DNA sexing
určování pohlaví z pera blood feather sexing
- určovat pohlaví** sex /seks/ v [T]
určovat pohlaví ptáků nechirurgicky sex birds without surgery
- vaječný zub** anat. egg tooth /'egtu:θ/ n [C]
mládě pomocí vaječného zubu proklovne vnitřní membránu skořápky the chick uses its egg tooth to puncture the inner shell membrane
- vejce** egg /eg/ n [C]
- obracet vejce v inkubátoru turn eggs in an incubator
provádět kontrolu vajec carry out an egg inspection
snášet oplozená/neoplozená vejce lay fertile/infertile eggs
zahřívát vejce v hníždě warm eggs in the nest
- veterinář** veterinarian /ˌvetəri'neəriən/, infml vet /vet/ n [C]
poradit se s veterinářem consult a veterinarian
vyhledat veterináře seek out a veterinarian
veterinář specializovaný na ptáky avian veterinarian
- volání** hlasový signál call /kɔ:l/ n [C]
arové jsou známi svým hlasitým a nemelodickým voláním macaws are known for their loud and harsh call
vydávat varovné volání give out a call of warning
kontaktní volání contact call
volání při námluvách mating call
- volat** call /kɔ:l/ v [T]
samice volala svého partnera the hen was calling her mate
volat v nouzi veterináře call a vet in an emergency
- volavka** pták použitý pro přivolání jiného ptáka slang call bird
/kɔ:lbɜ:d/ n [C]
použít volavku k chycení ulétnuvšího papouška use a call bird to catch an escaped parrot
- vole** anat. crop /krɒp/ n [C]
krmit mládě směsí do volete feed the formula into the baby's crop
mít plné vole have a full crop
utrpět popálení volete suffer a crop burn
vyprázdnit vole empty the crop
- voliéra** aviary /'ervɪəri/ n [C]
umístit ptáka do voliéry place a bird in an aviary
vybavit voliéru dvojitým pletivem fit the aviary with double wire mesh
zabezpečit voliéru před dravci secure the aviary from predators
- pokojevá voliéra** indoor aviary
smíšená voliéra osazená různými druhy ptactva mixed aviary
venkovní voliéra outdoor aviary
voliéra s celodřevěnou konstrukcí timber-framed aviary
voliéra s kovovou konstrukcí metal-framed aviary
- vrčet** u větších importovaných papoušků projev strachu growl /graʊl/ v [U]
vrčet ze strachu growl out of fear
žakové z odchyty vrčí na lidi wild-caught Greys growl at humans
- výlet** venkovní voliéry flight /flaɪt/ n [C]
place a bird in a flight umístit ptáka do výletu
- vyžadovat** require /rɪ'kwaɪə/ v [T]
papoušci od svých majitelů vyžadují pozornost parrots require attention from their owners
vyžadovat neustálou péči require round-the-clock care
- zadržené vejce** med. egg binding /ˌeg 'baɪndɪŋ/ n [U]
dědičné příčiny zadrženého vejce hereditary causes of egg binding
masírovat kloaku při zadrženém vejci massage the cloaca in egg binding
uhynout na zadržené vejce die of egg binding
- žako šedý** Grey Parrot /greɪ 'pærət/, African Grey /ˌæfrɪkən 'greɪ/ *Psittacus erithacus*
- žako šedý kongo** poddruh žaka šedého Congo African Grey /'kɒŋgəʊ 'æfrɪkən greɪ/ *Psittacus erithacus eri-*

thacus

ako šedý liberijský podruh žaka sedého Timneh
African Grey /'tɪmni 'æfrɪkən greɪ/ *Psittacus eritha-*
cus timneh

Appendix B

Extracts from the sample dictionaries

The present appendix contains extracts from a number of sample dictionaries, the aim being the illustration of various aspects of their macrostructure, microstructure and outside matter.

The first extract is an example of the well-utilized back matter of a LSP dictionary. Taken from STRAKOVÁ, a dictionary of business, it represents only a small part of an appendix rich in a variety of encyclopaedic information on various aspects of business that can also serve as a useful tool for translation.

The second extract is an example of a systematically arranged word list with inner alphabetical structuring (HEŘMANSKÝ). The dictionary is divided into numerous sections according to individual sports and games, each section containing alphabetically arranged lemmata. While such a dictionary provides a good overview of the vocabularies of individual sporting disciplines, it is not suitable for quick reference due to the high information cost.

The third extract illustrates an extreme case of a straight-alphabetical arrangement. This glossary-like dictionary of motoring (VLK) displays no attempt whatsoever at a more thought-out macro- and microstructure. Not only each term, but also each individual sense is allocated a separate entry, as are also collocations. The resulting impression is one of a very fragmented work lacking any touch of a lexicographer's hand; moreover, the dictionary is absolutely devoid of any linguistic or encyclopaedic information. Such a bare, machine-like glossary can only be a collection of terms, nothing more.

The fourth extract shows an instance of a much better managed macro-and microstructure (HÁJKOVÁ), with pronunciation, labelling, morphological information, synonyms addressed both to lemmata and equivalents, encyclopaedic information in the form of definitions and a well-utilized cross-reference structure. The ordering is the same as in VLK (straight alphabet), but the quality is several levels higher. The inclusion of pronunciation (though in its czechisized version) is commendable; the only shortcoming is the failure to indicate stress.

The fifth extract is a typical example of a technical dictionary (MALINOVÁ), arranged according to the niching principle and containing little linguistic information. A notable feature is the high number of context markers to discriminate meaning.

The sixth extract (CHROMÁ) represents a dictionary arranged according the second-level nesting principle whereby the alphabet is broken both in relation to the preceding and following lemmata and inside the nest among the sublemmata. Note the several alphabetical sequences in the entry "act".

The final extract demonstrates a rare instance of a Czech LSP dictionary providing a wealth of implicit linguistic information. It is presented by means of usage examples which inform on the morphological (e.g. determination), syntactic (e.g. valency) and lexical syntagmatic (collocations) properties of the lemma. A disadvantage of such an arrangement is that true multi-word terms (e.g. *fire insurance*, *subsidiary firm* etc., are lost among the syntagmatic/usage information in the

lemma column. This shortcoming is to some extent alleviated by the strict alphabetical principle applied inside the column, yet some highlighting of multi-word terms might be preferable in a dictionary of this kind (see Appendix A). From the point of view of access structure, note the representation of the head term by its first letter.

Figure B.1: Example of a well-utilized back matter of a LSP dictionary, containing a wealth of encyclopaedic information also relevant to translation.

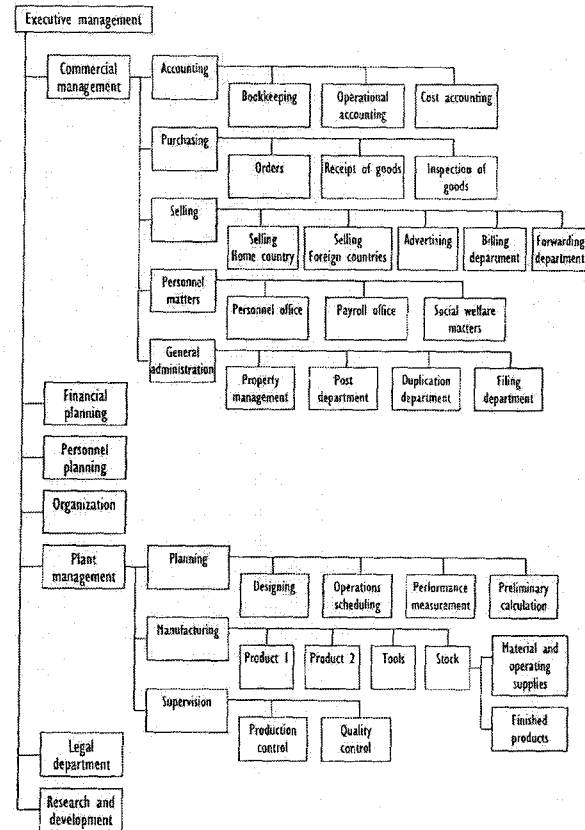
3. Accounting

Profit and Loss Account	Výkaz zisků a ztrát
Turnover	Tržby
Cost of sales	Náklady vynaložené na prodej
Gross profit/loss	Obchodní marže
Distribution costs	Odbytová režie
Administrative expenses	Správní režie
Other operating expenses	Ostatní provozní náklady
Other operating income	Ostatní provozní výnosy
Operating profit/loss	Pravozní hospodářský výsledek
Income from shares in group undertakings	Výnosy z podniků ve skupině
Income from participating interests	Výnosy z podniků, ve kterých společnost vlastní podílové cenné papíry a vklady
Income from other fixed asset investments	Výnosy z ostatních investic do investičního majetku
Other interest receivable and similar income	Ostatní výnosové úroky a podobné příjmy
Amounts written off investments	Částky odepisovaných investic
Interest payable and similar charges	Nákladové úroky a podobné náklady
Profit/loss on ordinary activities before taxation	Hospodářský výsledek za běžnou činnost před zdaněním
Tax on profit/loss on ordinary activities	Daň z příjmů za běžnou činnost
Profit/loss on ordinary activities after taxation	Hospodářský výsledek za běžnou činnost po zdanění
Dividends – preference shares	Dividendy – prioritní akcie
– ordinary shares	– kmenové akcie
Extraordinary income	Mimofádné výnosy
Extraordinary charges	Mimofádné náklady
Extraordinary profit/loss	Mimofádný hospodářský výsledek
Tax on extraordinary profit/loss	Daň z příjmů z mimořádné činnosti
Other taxes not shown under the above items	Ostatní výše neuvedené daně a poplatky
Profit/loss for the financial year	Hospodářský výsledek za účetní období
Amount transferred from/to reserves	Částka převedená z/do rezervních fondů
Earnings per ordinary share	Výnosy na kmenovou akcii
Dividends per ordinary share	Dividendy na kmenovou akcii
Retained profit for the financial year	Nerozdělený zisk za účetní období

730

4. Industrial Enterprise / Průmyslový podnik

Diagram of the Enterprise Organizational Structure / Organigram průmyslového podniku



731

Aerobatics

performance zone [pə'fɔ:m(ə)ns zaun] vymezený prostor
závodíště
pilot [paɪlət] *p* pilot; **aerobatic p.** letecký akrobatic
pitch [pi:tʃ] *p* klonění
positioning judge [pə'zi:ʃ(ə)niŋ dʒadʒ] postranní rozhodčí
power dive [paʊə daɪv] střemhlavý let plnou rychlostí
program [prəʊgræm] *p* sestava; **free p.** volná sestava,
known compulsory p. povinná známá sestava,
unknown compulsory p. povinná tajná sestava
renversement [rɒn've:s(ə)m(ə)nt] *p* souvrat
roll [rəʊl] výkrut, klopení; **barrel r.** výkrut, **half r.** půlvýkrut,
slow r. pomalý/řízený výkrut, **snap r.** rychlý/kopaný výkrut
rudder [rədə] *p* směrové kormidlo
runway [ranwei] *p* vzletová a přistávací dráha
sequence [si:kw(ə)ns] *p* sestava; **compulsory s.** povinná
sestava
spin [spɪn] *p* vývrtka; **flat s.** plochá vývrtka, **tail s.** neustálená
vývrtka
stunt [stʌnt] *p* prvek letecké akrobacie
tail slide [teɪl slɑɪd] skluz po ocase
take-off [teɪkɒf] *p* vzlet
time limit [taɪm lɪmɪt] časový limit
vertical eight [vɜ:tɪkl eɪt] stojatá osmička
wingover [wɪŋəʊvə] *p* překrut

Americk:

AMERICAN FOOTBALL

AMERICKÝ FOTBAL

aerial [eəriəl] *p* (také **forward pass**) přihrávka dopředu
all-pro [ɔ:lpraʊ] *p* US hráč nominovaný do all-pro týmu
all-pro team [- ti:m] US jeden ze dvou týmů sestava
z nejlepších hráčů sezony
American football [ə'merɪk(ə)n futbo:l] americký
americké ragby zří
American footballer [- futbo:lə] americký fotbalista
arena football [ə'ri:nə futbo:l] halová varianta ame-
rickeho fotbalu
audible [o:dɪbl] *p* (také **automatic, checkoff**) *p*
změně akce na čáře rozehraní při změně straty
poslední chvíli
automatic [ɔ:tə'mætɪk] *p* (také **audible, checkoff**)
ke změně akce na čáře rozehraní při změně straty
poslední chvíli
backer-up [bækə'ʌp] *p* (*mn* backers-up) (také **linebacker**)
obránce stojící těsně za přední řadou
backfield [bækfi:ld] *p* druhá řada hráčů
back judge [bæk dʒadʒ] zadní rozhodčí
ball-carrier [bo:lkaəriə] *p* hráč, který postupuje s míčem
ball hawk [bo:l ho:k] hráč sledující míč
beat [bi:t] *s* *př* (beat - beaten) obejít, vy-
soutěžit (s nadávacím hráčem)

Figure B.2: Example of a systematically arranged macrostructure with inner alphabetical ordering.

Ch

chafer – pryžová vložka do ráfku
 chafing strip – pryžová vložka do ráfku
 chain – řetěz
 chain and sprocket drive – řetězový pohon
 chain camshaft drive – řetěz pohonu vačkového
 hřídele
 chain camshaft drive – řetěz pro pohon
 vačkového hřídele
 chain case – kryt řetězu
 chain case – skříň řetězu
 chain drive – řetězový pohon
 chain drive – pohon pásů pásového vozidla
 chain guard – kryt řetězu
 chain guide – vedení řetězu
 chain hoist – řetězový zvedák
 chain hoist – kladkostroj
 chain idler pulley – napínací kladka řetězu
 chain link – článek řetězu
 chain sprocket – řetězové kolo
 chain tensioner – napínač řetězu
 chain transmission – řetězový pohon
 chain wheel – řetězové kolo
 chamber – komora
 chamfer – úkos
 chamois – kůže na vysušení karoserie po mytí
 chamois – kůže na čištění skel
 change – výměna
 change down – řadit dolů
 change gears – řadit převodové stupně
 change in axle load – změna zatížení
 change in axle weight – změna zatížení
 change in direction – změna směru
 change in engine load – změna zatížení motoru
 change in load – změna zatížení
 change in temperature – změna teploty
 change in wheel load – změna zatížení kola
 change in wheel weight – změna zatížení kola
 change lanes – změnit jízdní pruh
 change of axle load – změna zatížení nápravy
 change of axle weight – změna zatížení nápravy
 change of direction – změna směru (jízdy)
 change of speed – změna rychlosti
 change of state – stavová změna
 change of wheel load – změna zatížení kola

change of wheel weight – změna zatížení kola
 change over relay – přepínací relé
 change over switch – přepínač
 change speed fork – řadicí vidlice
 change speed fork – zasouvací vidlice
 change speed lever – řadicí páka
 change speeds – řadit převodové stupně
 change the gear – řadit převodový stupně
 change the oil – vyměnit olej
 change to the next higher gear – řadit na vyšší
 rychlostní stupeň
 change to the next lower gear – řadit na nižší
 rychlostní stupeň
 change tracks – měnit jízdní pruh
 change up – řadit nahoru
 change-over – přepínání
 change-over – přepnutí
 change-over point – přepínací bod
 change-over switch – přepínač
 change-over valve – přepínací ventil
 change-over valve – řadicí ventil
 changing – řadit rychlostní stupeň
 changing of tire – výměna pneumatiky
 changing-over – přepínání
 changing-over – přepnutí
 channel – šachta
 channel – kanál
 channel cross-member – příčka z U-profilu
 channel section – dutý plechový profil
 channel section – U-profil
 channel section axle – náprava z U-profilu
 channel section frame – rám z U-profilu
 channel-section beam – nosník z U-profilu
 channel-section member – nosník z U-profilu
 channel-section rail – nosník z U-profilu
 characteristic – charakteristika
 characteristic curve – charakteristika
 characteristic map – charakteristika
 characteristic map – složená charakteristika
 characteristic oscillation – vlastní kmitání
 characteristic speed – charakteristická rychlost
 (nedotáčivého vozidla)
 characteristic vibration – vlastní kmitání
 characteristic vibration – vlastní kmity
 characteristics – charakteristika
 characteristics – chování
 characteristics – vlastnosti
 charcoal – dřevěné uhlí
 charcoal canister – nádrž s aktivním uhlím
 charcoal filter – čistič s aktivním uhlím

Figure B.3: Example of a very poor macro- and microstructure of a LSP dictionary, showing a marked lack of lexicographic expertise.

absorbed dose rate [əbzɔ:bd dɔ:z rejt] dávkový příkon, dávková rychlost *The increment of absorbed dose during a suitably small interval of time divided by that interval of time.*

absorbent [əbzɔ:bənt] 1. absorbent

2. absorpční, savý, absorbuující, pohlcující

absorber [əbzɔ:bə] absorbér, pohlcovač *The component of a collector that absorbs solar radiation, converts it to heat energy and transfers the heat to a heat-transfer medium. If an absorbing liquid is used then this may constitute both the absorber and the heat-transfer fluid.* (syn. absorber plate)

absorbing [əbzɔ:bɪŋ] 1. absorpce, pohlcování

2. absorbuující, sorpční, pohlcovací

absorbing capacity [əbzɔ:bɪŋ kəpəsɪtɪ]

absorpční schopnost, sorpční kapacita,

absorbing power, exchange capacity

absorbing column [əbzɔ:bɪŋ kɔ:ləm] absorpční kolona, absorpční věž **absorbing tower** (syn. bubble tower)

absorbing complex [əbzɔ:bɪŋ kɒmpleks] sorpční půdní komplex

absorbing power *see* **absorbing capacity**

absorbing tower *see* **absorbing column**

absorptance [əbzɔ:pʃəns] součinitel absorpce,

součinitel pohltivosti **absorption factor** *The ratio of the total unabsorbed radiation to the total incident radiation. It is equal to one (unity) minus the transmittance.*

absorption [əbzɔ:pʃən] absorpce, vsakování, vstřebávání, pohlcování *Action of taking a liquid into a solid.*

absorption capacity [əbzɔ:pʃən kəpəsɪtɪ]

absorpční schopnost

absorption coefficient [əbzɔ:pʃən kəʊfɪʃənt]

absorpční koeficient. *A measure of the fraction of sound intensity lost at a surface.*

absorption factor *see* **absorptance**

absorption silencer [əbzɔ:pʃən saɪlənsə]

absorpční tlumič, pohlcovač *A device which is set on the air outlets and inlets of air-extraction systems.*

abstraction [əbstrækʃən] abstrakce,

abstahování, oddělení

abtransportation [əbtrənsportetʃən] odvázení, odvoz

abundance [əbʌndəns] blahobyt, hojnost,

abundance, nadbytek, velké množství, relativní zastoupení (např. prvku v minerálu) *Large amount or number of something.*

abundant [əbʌndənt] hojný, vydatný, bohatý

copious, plentiful *Occurring in large numbers.*

abutlon *see* **American jute**

abyssal [əbɪsəl] abysál, *Referring to the deepest part of the sea.*

abyssal benthic zone [əbɪsəl benθɪk zəʊn] hlubokomořská bentická oblast, **benthic zone** *The deep-sea zone extending beyond 1000m.*

abyssal deposit [əbɪsəl dɪpɔ:zɪt] hlubokomořský sediment, abysální uloženiny (pl.) **deep-sea deposit** *The sediment found on the deep-sea plain.*

abyssal environment [əbɪsəl ɪnvaɪrənmənt]

hlubokomořské prostředí, abysální prostředí

deep-sea plain *The environment at the bottom of deep oceans, that is greater than 2000 m.*

abyssal zone [əbɪsəl zəʊn] zóna abysálu, *Deepest and darkest part of the sea below the euphotic zone (about 4,000 metres deep) where light cannot reach and plant and animal life is rare.*

abyssopelagic [əbɪsɒpələdʒɪk] abysálo-pelagický, *Relating to the deepest part of the sea, at depths greater than 3,000 metres.*

acacia tree *see* **thorn tree**

acaricides (pl.) [ækəri:si:dz] přípravky proti roztočům (pl.), akaricidy (pl.) *Poisons used to kill mites and ticks.*

acarid [ækərɪd] roztoč, *A mite or tick or a small insect which feeds on plants or animals by piercing the outer skin and sucking juices.*

acarides (pl.) [ækərɪdz] Roztoči (pl.), mites (pl.) *Acarina, Acaridae.*

accelerate [ækseləreɪt] zrychlit, urychlit, akcelerovat, vzrůst

accelerated erosion [ækseləretɪd ɪrəʊzən] urychlená eroze

accelerated test [ækseləretɪd test] zrychlený test, *A test, based on accepted mechanistic principles, speed up the testing process when compared to expected field conditions. Generates information as a function of time, on a compressed time scale.*

acceleration [ækseləreɪʃən] zrychlení, akcelerace, urychlení

acceptable daily intake [ækseptəbl deɪli ɪnteɪk] přípustná denní dávka, přijatelný denní příson *The daily intake of substance consumed over the entire life span of an organism that will not harm the health of that organism.*

acceptance capacity [ækseptəns kəpəsɪtɪ] přípustné zatížení recipientu, *The quantity of pollutants which a water body can accept without the pollution exceeding a given level.*

access road [ækses rəʊd] příjezdová cesta, přístupová cesta

accessibility [æksesəbɪlɪtɪ] přístupnost, dostupnost, zpřístupnění, dosažitelnost

accessories (pl.) [æksesərɪz] vybavení, příslušenství, vstroj

accessory bud *see* **adventitious bud**

accessory species (sg. and pl.) [æksesəri spi:ʃɪz] přimíšený druh (dřeviny)

accident [ækstɪdnt] havárie, nehoda, neštěstí, nepředvídaná událost

accidental discharge [ækstɪdntəl dɪʃɑ:dʒɪz]

Figure B.4: A good-quality straight-alphabetical dictionary with a wealth of encyclopaedic and lexical paradigmatic information. Pronunciation is in its Czechized form with stress indication missing.

~-sharing sdílení pásem
 ~ (sound) pressure level hladina akustického tlaku v pásmu
 ~-stop filter pásmová zadrž
 ~-stop/high-pass transformation transformace „pásmová zadrž – horní propust“
 ~ theory pásová teorie
 bandgap absorption viz characteristic absorption
 banding insulation izolace bandáže, odizolování bandáže od vyložených čel vinutí
 bandspread rozestření pásma
 bandswitching přepínání pásma
 bandwidth (BW) šířka pásma (kmitočtového)
 ~ compression zúžení šířky pásma, komprese šířky pásma
 ~ control regulace šířky pásma
 bang-bang control dvojpohové řízení, dvojpohová regulace
 ~-bang relay dvojpohové relé
 bank-and-wiper switch tlř. dvoupohybový volič, volič se dvěma pohyby
 ~ indicator příčný sklonoměr
 ~ of contacts tlř. kontaktní pole, dotekové pole
 ~ of lamps tlř. žárovkové pole
 ~ proof machine stroj na sčítání šeků
 ~ (punched) card děrný štítek bez předtisku
 bantam tube miniaturní elektronka
 bar 1. tyč, tyčinka; břevno (široká ručička indikátoru); bar (jednotka tlaku); 2. hradit, zahrazovat, blokovat
 ~ for originating call tlř. blokování obchozího volání
 ~ signal tel. (zkušební) obrazový signál obdélníkovitého tvaru (s definovanou strmostí boků); tel. signál prahu
 ~ winding tyčové vinutí
 bare holý, neizolovaný
 ~ bulb holá žárovka
 ~ cable holý (nepancéřovaný) kabel
 ~ conductor holý vodič, neizolovaný vodič
 ~ fluorescent lamp holá zářivka
 ~ line holé vedení
 ~ reactor reaktor bez reflektoru, prostý reaktor

~ wire holý drát
 ~ wiring holé vedení, spoje holým drátem
 barium getter baryový getr
 ~ oxide cathode baryová katoda
 Barkhausen effect Barkhausenův jev
 Barkhausen jump Barkhausenův skok
 barn jad. barn
 baroreceptor tlakový receptor
 barred access př. dat zamezený přístup, nepřístupnost
 ~ calls př. dat odmítaná volání, nepřipouštěná volání (opatření v síti)
 barrel distortion soudkové zkreslení
 barretter stabilizátor proudu, železný drát ve vodíkové atmosféře
 barrier device tlmech. oddělovací jednotka (pro galvanické oddělení)
 ~ frequency mezní kmitočet (šíření vln)
 ~ gate hradlo
 ~ grid hradicí mřížka
 ~ injection transit time diode dioda BARRITT
 ~ layer závěrná vrstva, bariérová vrstva, hradlová vrstva
 ~-layer capacitance kapacita přechodu
 ~-layer photocell fotovoltaiický článek, hradlová fotonka
 ~-layer rectifier usměrňovač s hradlovou vrstvou
 barriers žel. závory
 BARRITT diode viz barrier injection transit time diode
 barye absolutní bar (1 dyn/cm^2)
 base patka; podstavec; spodek; základová deska; podložka (integrovaného obvodu); báze (tranzistoru); (US) patice (elektronky)
 ~ address poč. základní adresa, báze
 ~ bias polarizace báze
 ~ connection přívod báze; přívod patice
 ~ contact přívod báze; dotek patice
 ~ current proud báze, vztažný proud
 ~ current amplification proudové zesílení tranzistoru, beta
 ~ diffusion isolation (BDI) izolace difúzní oblasti báze
 ~-fed antenna anténa napájená u patice
 ~ lead přívod báze
 ~-line distortion zkreslení základny
 ~-line offset tel. základní úrovně

Figure B.5: A typical niched technical dictionary with little linguistic information.

service potvrzení přijetí soudní obsílky a záměru dostavit se k soudu

a contrario sensu [ˌeɪkənt'reiəriəʊ'sensju] (*lat*) v opačném smyslu, na druhé straně

acquaint [ə'kweɪnt] (*v*) *with* st./sb. seznámit se s čímkým; **make sb. ~ed with st.** seznámit koho s čím

acquest [æ'kwɛst] (*n*) jinak než dědictvím nabytá / získaná věc

acquiesce [ˌækwɪ'ɛs] (*v*) mlčky souhlasit

acquiescence [ˌækwɪ'ɛsnɪs] (*n*) *in* st. mlčky daný souhlas; rezignovaný souhlas

acquire [ə'kwɪə(r)] (*v*) st. 1 získat co, nabýt čeho; ~ **the confidence of sb.** získat důvěru koho; ~ **nationality** získat státní občanství; ~ **rights** nabýt práva; ~ **d surplus** získaný přebytek 2 osvojit si co

acquisition [ˌækwɪ'zɪʃən] (*n*) *of* st. 1 nabytí, získání čeho; ~ **commission** získatelská provize; ~ **costs** získatelské náklady 2 knihovní přírůstek, přínos pro koho/co 3 pojišť. nábor pojistek; ~ **agent** náborový pracovník

acquisitive [ə'kwɪzətɪv] (*adj*) hrabivý, ziskový; ~ **offence** majetkový trestný čin

acquit [ə'kwɪt] /*tt*/ (*v*) 1 sb. *of* st. zprostit koho viny, osvobodit koho od čeho, vynešt osvobozující rozsudek nad kým; ~ **the accused** zprostit obžalovaného viny; ~ **of the crime** zprostit obžaloby z trestného činu 2 st. vyrovnat, splatit co; vyhovět čemu; ~ **claim** vyhovět nároku; ~ **debt** vyrovnat dluh

acquittal [ə'kwɪtl] (*n*) 1 zproštění viny, osvobozující rozsudek, vynesení osvobozujícího rozsudku 2 zproštění smluvní povinnosti n. odpovědnosti

acquittance [ə'kwɪtəns] (*n*) kvittance, potvrzení o splnění, stvrzenka

act ¹ [ækt] (*n*) čin, úkon; konání, jednání; **criminal** ~ trestný čin, trestné jednání; **illegal** ~ protiprávní čin, nezákonné jednání; **legal** ~ právní úkon; **legislative** ~ legislativní úkon; **negative** ~ zakazující normativní právní akt; **overt** ~ zjevný čin; **private** ~ soukromý právní úkon; **prohibited** ~ nedovolené jednání / konání postizitelné sankcí; **public** ~ veřejný právní úkon úředně ověřený; ~ **contrary to the order** čin namířený proti veřejnému pořádku; ~ **in law** právní úkon; ~ **of commission** komisivní jednání; ~ **of God** vyšší moc; ~ **of grace** skutek dobré vůle; udělení

milosti; ~ **of hostility** nepřátelský akt; ~ **of law** působení zákona; ~ **of omission** omisivní jednání; ~ **of Providence** vyšší moc; ~ **of sale** notářsky zaznamenaný akt prodeje; ~ **on petition** zkrácené soudní jednání na žádost; **as free ~ and deed** svobodně a vážně; jako projev svobodné vůle; **liable for one's ~s** odpovědný za své činy; **obligation not to permit or suffer such ~** povinnost nepřipustit či nestrpět takové jednání; **perform an illegal ~** spáchat protiprávní čin, protiprávně jednat

act ² [ækt] (*n*) zákon; **anti-trust** ~s protitrustové zákony; **revenue** ~ zákon o příjmech; **tariff** ~ celní zákon; **Contracts of Employment A~** *brit.* zákon o pracovních smlouvách; **Control of Pollution A~** *brit.* zákon o kontrole znečištění; **Copyright A~** zákon o autorském právu; **Industrial Relations A~** *brit.* zákon o pracovněprávních vztazích; **Offices, Shops and Railway Premises A~** *brit.* zákon o úřadech, obchodech a železničních provozech; **Representation of the People A~** *brit.* zákon o zastoupení lidu; **A~ of Parliament** *brit.* zákon schválený Parlamentem ♦ **Single European A~** (*ES*) Jednotný evropský akt

act ¹ [ækt] (*v*) jednat, působit, konat; ~ **as an impartial umpire** působit jako nestranný soudce; ~ **in accordance with st.** jednat v souladu s čím, podle čeho; ~ **in bad faith** jednat / konat ve zlém úmyslu mala fide; ~ **in conformity with st.** jednat v souladu s čím; ~ **in good faith** jednat / konat v dobré víře bona fide; ~ **in the same capacity** jednat se stejným oprávněním; ~ **intra vires** jednat v rámci svého oprávnění; ~ **on the advice of sb.** jednat podle čí rady; ~ **on behalf of sb.** jednat v zastoupení koho, jménem koho; ~ **ultra vires** překročit své oprávnění / zmocnění; ~ **upon ministerial advice** jednat / konat podle rady sboru ministrů

act ² [ækt] (*v*) jednat ve věci čeho, zabývat se čím; ~ **on disputes** zabývat se spory, rozhodovat ve sporech

acta jure imperii [ˈæktə,dʒuərə,ɪm'pɪəriəi] (*lat*) zákony Říše římské

acting [ˈæktɪŋ] (*adj*) úřadující, zastupující; ~ **executor** zastupující vykonavatel; ~ **officer** zastupující úředník

actio [ˈæksiəu] (*lat*) žaloba; ~ **contraria** [~kən'tra:riə, am. -'ræ:r-] protižaloba; ~ **crim-**

Figure B.6: A dictionary of law arranged according to second-level nesting.

fire

- semi-f-ed goods/products/ articles* polotovary
- fire** oheň, požár; propustit ze zaměstnání (hovor.)
- f. damage* škoda způsobená ohněm
- f. insurance* protipožární pojistka
- f. loss* škoda způsobená požárem
- f. peril/risk* nebezpečí/riziko požáru
- f. protection/prevention* požární ochrana
- f. raising* zhářství
- f. sale* výprodej zboží poškozeného požárem
- f. third party insurance* odpovědnostní požární pojištění
- hire and f.* často propouštět a přijímat nové pracovníky
- the new manager f-d half the sales force* nový ředitel propustil polovinu prodavačů
- to be f. hazard/risk* představovat riziko pro vznik požáru
- fireproof** ohnivzdorný
- pack the papers in a f. safe* uložit listiny do ohnivzdorného trezoru
- firing** (hovor.) propouštění pracovníků
- firm** firma, podnik, obchod; pevný, pevně; stálý, solidní; zpevnit
- affiliated f.* sesterská firma
- best-rated f.* firma s nejlepší pověstí
- bogus f.* falešná/podvodná firma
- brokerage f.* makléřská firma
- buy out a f.* vykoupit podnik
- close down a f.* zrušit podnik
- component operating f.* dílčí provozní jednotka
- consultant f.* poradenská firma, společnost
- consumer-oriented f.* firma zaměřená na zákazníky
- declining f.* upadající podnik
- endow a f.* dotovat podnik
- f. bid* pevná nabídka koupě
- f. commitment* pevná dohoda
- f. information* definitivní informace
- f. name* jméno, název firmy
- f. of consultants* poradenská firma
- f. offer* závazná nabídka
- f. order* závazná objednávka
- f. price* pevná cena
- f. running at a loss* ztrátový podnik
- flourishing f.* prosperující firma
- forwarding f.* zasilatelská firma
- go-ahead f.* podnikavá firma; aktivní, dravý podnik
- go-getting f.* aktivní podnik
- manufacturing f.* zpracovatelský podnik
- manufacturing-oriented f.* firma zaměřená na výrobu
- market-oriented f.* firma zaměřená na trh
- marketing-oriented f.* firma zaměřená na marketing
- medium-sized f.* podnik střední velikosti
- merge with a f.* sloučit se s podnikem
- noted f.* známý podnik
- renowned f.* známý, renomovaný podnik
- reputable f.* známý, vyhlášený podnik
- sales-oriented f.* firma zaměřená na prodej
- specialist f.* firma zvláštních služeb
- subsidiary f.* přidružená firma
- subsidize a f.* dotovat podnik
- supply and delivery f.* dodavatelská firma

Appendix C

Examples of the questionnaires from the 2004 user survey

The present appendix shows examples of the questionnaires used in a small user survey conducted at the University of West Bohemia in 2004 (see 3.4). Besides some common questions, the first questionnaire involved a translation from Czech into English, while the other tested the translation of an English text into Czech. Although the tests were, admittedly, very basic and only able to yield very preliminary results, the respondents produced some interesting comments regarding the usefulness of the LSP dictionary tested.

DOTAZNÍK PRO SKUPINU II (I.-Z)

I. How often do you use a **bilingual** (e.g. Czech-English or English-Czech) **terminological dictionary** (from the areas of business, law, information technology, etc.)?

- a) several times a week
- b) about once a week
- c) once or twice a month
- d) less than once a month

II. On what occasions do you use a bilingual terminological dictionary?

- a) most often when I receive a foreign-language specialized text or translate it into Czech
- b) most often when I translate a specialized text from Czech into a foreign language
- c) most often when I want to write a text (a seminar paper, a summary etc.) in a foreign language
- d) I do not use such dictionaries

III. Based on your own experience, how would you rate our terminological dictionaries? (e.g. do they usually contain enough information on the terms you are looking for? Are they user-friendly? Do they contain all the terms you are looking for?)

- a) very good
- b) average
- c) below-average
- d) poor

IV. One of the key tasks of a dictionary is reception of/translation from a foreign language. Read the following text in Czech. Using the enclosed extracts from an Czech-English technical dictionary, translate it into English. Then answer the following questions:

Trakční zařízení MACHINEKIT je určeno pro maximální poskytnutí průchodnosti vozidel s náhonem 4x4 v terénech, kde „off-roady“ již neprojedou. MACHINEKIT lze namontovat na téměř všechny typy terénních vozidel s náhonem na všechna 4 kola díky variabilnímu vnitřnímu dílu. Montáž MACHINEKITU zvládne téměř každý a netrvá déle než 30 minut.

The Machinekit traction is used for 4x4 drive vehicles to get maximum possibility of getting across the terrain where usual "off roads" can't be driven through. Thanks to variable interpart of Machinekit, it can be fitted in nearly all types of 4x4 jeeps. The installation of Machinekit is very easy, nearly every-one can do that and it doesn't last more than 30 min.

1. Which words did you have to look up in the enclosed dictionary?

traction, 4x4 drive, fit on

2. Were there any words which you had to double check in another dictionary to produce a correct translation?

Please name them. There could be mentioned verbs, the dictionary contains only nouns and sometimes we can't only transform the noun to get correctly the verb. There should be more examples, maybe.

3. Was there any information missing in any of the dictionary articles (grammar, preposition, collocations) that you would have found useful? Give concrete examples. And to have Eng-Eng dictionary would be a great idea - I mean special one with technical vocabulary. Everytime it helps to get similar text in English.

4. What were some of the problems you encountered during your translation? Can you think of any ways in which the dictionary might be improved to make translating easier? (we can find a lot of them on the Internet) - to have sth. where you might find the right phrase.

5. How do you rate this technical dictionary?

- a) very good
- b) average
- c) not very good

* sentence would be good suggestion

Figure C.1: A user survey questionnaire testing the encoding function of the dictionary.

DOTAZNÍK PRO SKUPINU I (A-K)

I. How often do you use a **bilingual** (e.g. Czech-English or English-Czech) **terminological dictionary** (from the areas of business, law, information technology, etc.)?

- a) several times a week
- b) about once a week
- c) once or twice a month
- d) less than once a month

II. On what occasions do you use a bilingual terminological dictionary?

- a) most often when I receive a foreign-language specialized text or translate it into Czech
- b) most often when I translate a specialized text from Czech into a foreign language
- c) most often when I want to write a text (a seminar paper, a summary etc.) in a foreign language
- d) I do not use such dictionaries

III. Based on your own experience, how would you rate our terminological dictionaries? (e.g. do they usually contain enough information on the terms you are looking for? Are they user-friendly? Do they contain all the terms you are looking for?)

- a) very good
- b) average
- c) below-average
- d) poor

IV. One of the key tasks of a dictionary is reception or translation from a foreign language. Read the following text in English. Using the enclosed extracts from an English-Czech technical dictionary, translate it into Czech. Then answer the following questions:

Engine Bolt Failure blamed for Air Disaster

Experts have confirmed that the fatal crash of a cargo plane into an apartment block was caused by failure of a bolt securing one of the plane's massive engines to the wings. Weakened by corrosion, the bolt sheared after take-off, causing one engine to break loose . . .

Source: Oxford English for Electrical and Mechanical Engineering, OUP 1998

Silnámi západky přičinou letového neštěstí. Letounu Experti potvrdili, že slabnutí (smotci) uvozu uhlédního (letadla) do pavilónového domar byl způsoben silnými západky zajišťujícími letoun z masivních motorů letadla ke křídlem. Západka oslabená korozí byla po vzletu letadla porušena smotkem a způsobila utržení (uvolnění) letadla motora.

1. Which words did you have to look up in the enclosed dictionary?
bolt, shear, break loose
2. Were there any words which you had to double check in another dictionary to produce a correct translation? Please name them.

Collocations

3. Was there any information missing in any of the dictionary articles (grammar, preposition, collocations) that you would have found useful? Give concrete examples.
take off - "know it's stand" or "take" but it wasn't in the dictionary - "čeho-měšiče" st. J. Froude (brilliant) *
4. What were some of the problems you encountered during your translation? Can you think of any ways in which the dictionary might be improved to make translating easier? There should be a description of a plane or a picture - or some information given
5. How do you rate this technical dictionary? I didn't know if it secured by západka or šroub? Jestli je západka zajišťující" uho "šroub pojeci" šroubk

* bolt - Angličtina-česky slovník -k. Hais, B. Hodek

Figure C.2: A user survey questionnaire testing the decoding function of the dictionary.

Bibliography

- Al-Kasimi, Ali (1977) *Linguistics and Bilingual Dictionaries*. Leiden: E.J. Brill.
- Bailly, Sophie et al. (2002) *Common European Framework of Reference for Languages: Learning, Teaching, Assessment. A Guide for Users*. Strasbourg: Language Policy Division. Available from: <http://culture2.coe.int/portfolio> [Accessed 01/06/2006]
- Baleka, Jan (2003) *Anglicko-český slovník výtvarného umění*. Praha: LEDA.
- Bažant, Zdeněk et al. (1992) *Anglicko-český technický slovník*. Praha: SNTL.
- Bažant, Zdeněk et al. (1992) *Česko-anglický technický slovník*. Praha: SNTL.
- Bergenholtz, Henning (1984) "Vom Wissenschaftlichen Wörterbuch zum Lernerwörterbuch" In: *Akten d. Essener Kolloquiums zur Grammatik im Wörterbuch. Lexicographica: Series Maior, 225-257*, ed. H. Bergenholtz and J. Mugdan. Tübingen: Niemeyer.
- Bergenholtz, Henning 1 (1994) "Zehn Thesen zur Fachlexikographie" In: *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbüchern, 45-56*, ed. B. Schaefer and H. Bergenholtz. Tübingen: Narr.
- Bergenholtz, Henning 2 (1994) "Fachsprache und Gemeinsprache: Lemmaselektion im Fachwörterbuch" In: *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbüchern, 285-299*, ed. B. Schaefer and H. Bergenholtz. Tübingen: Narr.
- Bergenholtz, Henning 3 (1994) "Beispiele in Fachwörterbüchern" In: *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbüchern, 421-439*, ed. B. Schaefer and H. Bergenholtz. Tübingen: Narr.
- Bergenholtz, Henning (1997) "Linguistische und lexikographische Fachwörterbücher in Skandinavien" In: *Lexicographica 13/1997*, 3-16.
- Bergenholtz, Henning, Kaufmann, Uwe (1997) "Terminography and Lexicography: A Critical Survey of Dictionaries from a Single Specialized Field". In: *Hermes, Journal of Linguistics no. 18 - 1997*, 91-127. Available from: <http://netdob.asb.dk/Lit/Hermes/H18.05.pdf> [Accessed 10/12/05]
- Bergenholtz, Henning, Pedersen, Jette 1 (1994) "Grammar in bilingual LSP dictionaries, with a special view to technical English" In: *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbüchern, 351-383*, ed. B. Schaefer and H. Bergenholtz. Tübingen: Narr.
- Bergenholtz, Henning, Pedersen, Jette 2 (1994) "Zusammensetzung von Textkorpora für die Fachlexikographie". In: *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbüchern, 161-176*, ed. B. Schaefer and H. Bergenholtz. Tübingen: Narr.
- Bergenholtz, Henning, Tarp, Sven 1 (1994) *Manual of Specialized Lexicography. The Preparation of Specialized Dictionaries*. Amsterdam: John Benjamins.

- Bergenholtz, Henning, Tarp, Sven 2 (1994) "Mehrworttermini und Kollokationen in Fachwörterbücher". In: *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbücher*, 385-410, ed. B. Schaefer and H. Bergenholtz, Tübingen: Narr.
- Bergenholtz, Henning, Tarp, Sven (2003) "Two opposing theories: On H.E. Wiegand's recent discovery of lexicographic functions." In: *Hermes, Journal of Linguistics*, no. 31 - 2003, 171-196. Available from: http://netdob.asb.dk/Lit/Hermes/H31_11.pdf [Accessed 21/01/2006]
- Blatná, Renata, Čermák, František (1995) *Manuál lexikografie*. Praha: H & H.
- Boud, David (1997) *Routledge Spanish Technical Dictionary/Dictionario Tecnico Ingles*. London: Routledge.
- Bowker, Lynne (2003) "Specialized lexicography and specialized dictionaries." In: *A Practical Guide to Lexicography*, 154-167, ed. P. van Sterkenburg. Amsterdam: John Benjamins.
- Brabcová, Alice 1 (2005) "Terminography: A Neglected Discipline?" In: *2nd Prague Conference on Linguistics and Literary Studies*, 21-31, ed. A. Grmelová, L. Dušková and M. Farrell. Praha: Univerzita Karlova – Pedagogická fakulta.
- Brabcová, Alice 2 (2005) "On Six Lexicographical Myths: Theory and Practice of Specialized Lexicography Contrasted" In: *Patterns. A Festschrift for Libuše Dušková*, 11-25, ed. J. Čermák, A. Klégr, M. Malá and P. Šaldová. Praha: Kruh moderních filologů.
- Chromá, Marta (1995) *Anglicko-český právnícký slovník*. Praha: LEDA.
- Collin, P.H. (1996) *Anglicko-český obchodní slovník (výkladový)*. Praha: P a R Centrum.
- Cowie, A.P. (1983) "On Specifying Grammar" In: *Lexicography: Principles and Practice*, 99-107, ed. R.R.K. Hartmann. London: Academic Press.
- Cowie, A.P. (1999) *English Dictionaries for Foreign Learners*. Oxford: Clarendon Press.
- Cruse, D.A. (1986) *Lexical Semantics*. Cambridge: Cambridge University Press.
- Crystal, David (1987) *A Dictionary of Linguistics and Phonetics*. Oxford: Basil Blackwell.
- Crystal, David (2003) "The Ideal Dictionary, Lexicographer and User" In: *Lexicography. Critical Concepts*, 319-327, ed. R.R.K. Hartmann. London: Routledge.
- Čermák, František (1995) "Překladová lexikografie." In: *Manuál lexikografie*, 230-247, ed. F. Čermák and R. Blatná. Praha: H a H.
- Čermák, František (2003) "Source materials for dictionaries" In: *A Practical Guide to Lexicography*, 18-26, ed. P. van Sterkenburg. Philadelphia: John Benjamins.
- Dodd, Steven W. (2003) "Lexicomputing and the Dictionary of the Future". In: *Lexicography. Critical Concepts*, 351-361, ed. R.R.K. Hartmann. London: Routledge.
- Dressler, Stephan, Schaefer, Burkhard, eds. (1994) *Wörterbücher der Medizin: Beiträge zur Fachlexikographie*. Tübingen: Niemeyer.
- Felber, Helmut, Budin, Gerhard (1989) *Terminologie in Theorie und Praxis*. Tübingen: Narr.
- Fronek, Josef (2000) *Velký česko-anglický slovník*. Praha: LEDA.
- Fuertes-Olivera, Pedro A. and Velasco-Sacristán, Marisol (2001) "A Critical Comparison of the Macrostructure and Microstructure of Two Bilingual English-Spanish Dictionaries of Economics" In: *International Journal of Lexicography*, Vol. 14, No. 1, 31-55. Oxford: Oxford University Press.

- Glendinning, E.H. and Glendinning, N. (1996) *Oxford English for Electrical and Mechanical Engineering*. Oxford: Oxford University Press.
- Gouws, Rufus H. (1998) "Strategies in Equivalent Discrimination" In: *Symposium of Lexicography IX: Proceedings of the Ninth Symposium on Lexicography, April 23-25, 1998 at the University of Copenhagen. Lexicographica: Series Maior, 99-113*, ed. J. E. Morgensen. Tübingen: Niemeyer.
- Gouws, Rufus H. (2003) "Types of articles, their structure and different types of lemmata" In: *A Practical Guide to Lexicography, 34-43*, ed. P. van Sterkenburg. Amsterdam: John Benjamins.
- Gruber, Thomas R. (1993). "A Translation Approach to Portable Ontology Specifications" In: *Knowledge Acquisition, 5(2), 1993, pp. 199-220*. Available from: <http://tomgruber.org/writing/ontolingua-kaj-1993.htm> [Accessed 05/05/2006]
- Hais, Karel, Hodek, Břetislav (1992) *Velký anglicko-český slovník*. Praha: Academia.
- Hájková, Dagmar et al. (1998) *Anglicko-český a Česko-anglický slovník ekologie a životního prostředí*. Praha: Fontána.
- Hanák, Milan et al. 1 (1998) *Anglicko-český architektonický a stavební slovník*. Plzeň: Fraus.
- Hanák, Milan et al. 2 (1998) *Česko-anglický architektonický a stavební slovník*. Plzeň: Fraus.
- Hanks, Patrick (2003) "Definitions and Explanations" In: *Lexicography. Critical Concepts, 191-207*, ed. R.R.K. Hartmann. London: Routledge.
- Hartmann, R.R.K. (2000) "European Lexicography: Perspectives on Dictionary Research, with Special Reference to the Countries of the European Union" In: *Dictionaries: Journal of the Dictionary Society of America 21, 2000, 10-19*.
- Hartmann, R.R.K. (2001) *Teaching and Researching Lexicography*. Harlow: Essex.
- Hartmann, R.R.K, ed. (2003) *Lexicography. Critical Concepts*. London: Routledge.
- Hausmann, Franz Josef, Reichmann, Oskar, Wiegand, Herbert Ernst, Zgusta, Ladislav (1989) *Wörterbücher. Ein Internationales Handbuch zur Lexikographie* Berlin/New York: de Gruyter.
- Hartmann, R.R.K., James, Gregory (2001) *Dictionary of Lexicography*. London: Routledge.
- Heidenreich, Barbara (2005) *The Parrot Problem Solver. Finding Solutions to Aggressive Behaviour*. Neptune City N.J.: T.F.H. Publications.
- Heltai, Pál (1988) "Contrastive Analysis of Terminological Systems and Bilingual Technical Dictionaries" In: *International Journal of Lexicography vol 1, No 1, 1988, 32-40*.
- Heřmanský, Jaroslav (2003) *Moderní anglicko-český slovník sportovních výrazů*. Brno: Barrister a Principal.
- Horák, Bohuslav (1999) *Lesnický a dřevařský slovník anglicko-český a česko-anglický*. Hradec Králové: Lesnická práce.
- Hornby, A.S. (1998) *Oxford Advanced Learner's Dictionary of Current English*, ed. A.P. Cowie. Oxford: Oxford University Press.
- Hornby, A.S. (2000) *Oxford Advanced Learner's Dictionary of Current English*, ed. S. Wehmeier. Oxford: Oxford University Press.

- Hupka, Werner (2003) "How Pictorial Illustrations Interact with Verbal Information in the Dictionary" In: *Lexicography. Critical Concepts*, 363-390, ed. R.R.K. Hartmann. London: Routledge.
- Ilson, Robert (1988) "Contributions to the terminology of lexicography" In: *ZüriLEX '86 Proceedings. Papers Read at the EURALEX International Congress, University of Zürich, 76-80*, ed. M. Snell-Hornby. Tübingen: Francke Verlag.
- International Standard ISO 704: 2000 (E). *Terminology work - Principles and Methods*.
- Jackson, Howard (1985) "Grammar in the Dictionary" In: *Dictionaries, Lexicography and Language Learning*, 53-59, ed. R. Ilson. Oxford: Pergamon Press.
- Kalina, Miroslav, ed. (2001) *Odborný slovník z oblasti ekonomické, obchodní, finanční a právní*. Praha: Linde.
- Knobloch, Clemens, Schaefer, Burkhard (1994) "Fachübergreifender wissenschaftlicher Wortschatz" In: *Fachsprache und Kommunikation in Forschung, Lehre und beruflicher Praxis*, 125-145, ed. B. Schaefer. Essen: Blaue Eule.
- Knowles, F.E. (1986) "Lexicography and terminology: a rapprochement?" In: *ZüriLex '86 Proceedings*, ed. M. Snell-Hornby. Tübingen: A Francke Verlag.
- Koubek, Josef (2003) *Anglicko-český výkladový slovník personalistiky*. Praha: Management Press.
- Landau, Sidney (1989) *Dictionaries. The Art and Craft of Lexicography*. Cambridge: Cambridge University Press.
- Longman Dictionary of Contemporary English* (1994) New Edition. Harlow: Longman.
- Machačka, Ivo (1998) *Česko-anglický a anglicko-český slovník na cesty a dopravní rádce pro řidiče a motoristy*. Pardubice: Systemconsult.
- Machová, Svatava (1995) "Terminografie". In: *Manuál lexikografie, 137-157*, ed. R. Blatná and F. Čermák. Praha: H & H.
- Macmillan English Dictionary for Advanced Learners* (2002) Oxford: Macmillan Education.
- Meer, Geert, van der (1998) "How to Find the Correct Language Equivalent" In: *Lexicographica: Series Maior, Band 90, 117-135*, ed. A. Zetteresen, V.H. Pedersen, J.E. Morgensen. Tübingen: Niemeyer.
- Meier, Hans (2000) "Lexicography as Applied Linguistics" In: *Lexicography. Critical Concepts*, 307-317, ed. R.R.K. Hartmann. London: Routledge.
- Malinová, Libuše (1993) *Anglicko-český a česko-anglický elektrotechnický a elektronický slovník*. Brno: SNTL.
- Martin, Willy and Vliet, Hettie, van der (2003) "Design and production of terminological dictionaries" In: *A Practical Guide to Lexicography, 333-350*, ed. P. van Sterkenburg. Amsterdam: John Benjamins.
- Meer, Geert, van der (1998) "How to Find the Correct Language Equivalent" In: *Lexicographica: Series Maior, Band 90, 117-135*, ed. A. Zetteresen, V.H. Pedersen, J.E. Morgensen. Tübingen: Niemeyer.
- Merta, Augustin, Mertová, Dagmar (1994) *Anglicko-český slovník knihovnictví a informatiky*. Praha: LEDA.
- Minihofer, Oldřich, Havlíček, Miroslav, Starý, Jaroslav (1994) *Anglicko-český slovník. Zpracování dat, telekomunikace, kancelářské systémy*. Praha: LEDA.

- Murray, Jonathan P. (1995) *Anglicko-český lékařský terminologický slovník*. Praha: H & H.
- Newmark, Leonard (1989) "Reversing a One-Way Bilingual Dictionary" In: *8th EURALEX International Congress Proceedings, 37-48*, ed. Dolezal, F.M. et al. Tübingen: Niemeyer.
- Nielsen, Sandro (1992) "Lexicographical Basis for an Electronic Bilingual Accounting Dictionary: Theoretical Considerations" In: *LexicoNordica 9-2002*, 173-194. Available from: <http://www.sprog.asb.dk/sn/lexicographicalbasis.htm>. [Accessed 08/06/2006]
- Nielsen, Sandro (1994) *The Bilingual LSP Dictionary. Principles and Practice for Legal Language*. Tübingen: Narr.
- Nielsen, Sandro (1999) "Mediostructures in bilingual specialized dictionaries" In: *Lexicographica 15, 90-113*. Tübingen: Max Niemeyer.
- Opitz, Kurt (1983) "On Dictionaries for Special Registers. The Segmental Dictionary" In: *Lexicography: Principles and Practice, 53-64*, ed. R.R.K. Hartmann. London: Academic Press.
- Opitz, Kurt (1999) "The terminological/standardized dictionary" In: *Lexicography: Principles and Practice, 163-180*, ed. R.R.K. Hartmann. London: Academic Press.
- Pedersen, Jette (1995) "The Identification and Selection of Collocations in Technical Dictionaries". In: *Lexicographica 11, 60-73*, ed. F.M. Dolezal et al. Tübingen: Max Niemeyer.
- Poldauf, Ivan (1992) *Velký česko-anglický slovník*. Čelákovice: WD Productions.
- Poštolková, Běla, Roudný, Miroslav, Tejnor, Antonín (1983) *O české terminologii*. Praha: Academia.
- Průcha, Jan (2005). *Česko-anglický pedagogický slovník*. Praha: ARSCI.
- Riggs, Fred (2003) "Terminology and terminography: their complementarity." In: *Lexicography: Critical Concepts, 328-351*, ed. R.R.K. Hartmann. New York: Routledge.
- Roberts, Roda P. (2001) "Organization of information in a bilingual dictionary entry" In: *Euralex Proceedings*. Tübingen: Niemeyer.
- Roelcke, Thorsten (1997) "Fachlexikologie und Fachlexikographie: eine historische und systematische Problemskizze" In: *Linguistische Theorie und lexikographische Praxis: Symposiumverträge, Heidelberg 1996, 201-217*, ed. K.P. Konerding and A. Lehr. Tübingen: Niemeyer.
- Rulík, Martin, Husák, Štěpán, Květ, Jan (1996) *Anglicko-český a česko-anglický slovník pojmů využívaných v hydrobiologii a ekologii mokřadů*. Praha: Phare.
- Řáda, Ivan (2001) *Anglicko-český letecký slovník*. Praha: LEDA.
- Sager, Juan C. (1990) *A Practical Course in Terminology Processing* Amsterdam: John Benjamins.
- Sciarone, Abondio (1983) "The Organization of the Bilingual Dictionary" In: *LEXeter '83 Proceedings. Papers from the International Conference on Lexicography at Exeter, 9-12 September 1983, 413-419*, ed. R.R.K. Hartmann. Tübingen: Niemeyer.
- Šarčević, Susan (1989) "Conceptual Dictionaries for Translation in the Field of Law" In: *International Journal of Lexicography, Vol. 2, No. 4*. Oxford: Oxford University Press.
- Schaeder, Burkhard, Bergenholtz, Henning (1994) *Fachlexikographie. Fachwissen und seine Repräsentation in Wörterbüchern*. Tübingen: Narr.

- Schneider, Franz (1998) *Studien zur konzetuellen Fachlexikographie: das deutsch-französische Wörterbuch der Rechnungslegung* Tübingen: Max Niemeyer.
- Schwarz, J. (2003) "Vybrané teoretické a metodologické problémy terminografie: poznatky z tvorby České terminologické databáze knihovnictví a informační vědy". In: *Národní knihovna. Knihovnická revue, 21-42, Issue 1*. Available from: <http://full.nkp.cz/nkk/NKKR0301/0301021.html>. [Accessed 23/01/2006]
- Sinclair, John (2003) "Corpus processing" In: *A Practical Guide to Lexicography*, ed. P. van Sterkenburg. Amsterdam/Philadelphia: John Benjamins.
- Snell-Hornby, Mary (1985) "Towards a Learner's Bilingual Dictionary" In: *The Dictionary and the Language Learner: Papers from the EURALEX seminar at the Univ. of Leeds 1-3 April 1985. Lexicographica: Series Maior, 159-170*. Tübingen: Niemeyer.
- Shine, Norman (1990) "Dictionaries for Specialised Languages. The Situation in Denmark Today" In: *Symposium on Lexicography V: Proceedings of the Fifth International Symposium on Lexicography, May 3-5 1990, 175-187*, ed. M.Snell-Hornby. Tübingen: Niemeyer.
- Sochor, Karel (1955) *Příručka o českém odborném názvosloví*. Praha: NČSAV.
- Stellbrink, Hans-Jürgen (2000) "The Dictionary of the Gas Industry: A cooperative approach to dictionary making" In: *ZüriLex 86 Proceedings*, ed. Mary Snell-Hornby
- Straková, Marcela, Bürger, Josef, Hrdý, Milan 1 (2000) *Anglicko-český hospodářský slovník*. Plzeň: Fraus.
- Straková, Marcela, Bürger, Josef, Hrdý, Milan 2 (2000) *Česko-anglický hospodářský slovník*. Plzeň: Fraus.
- Svensén, Bo (1993) *Practical Lexicography. Principles and Methods of Dictionary-Making*. Oxford: Oxford University Press.
- Šíma, Jiří (1993) *Česko-anglický slovník pro geodety a kartografy*. Zdiby: VÚGTK.
- Topilová, Věra (1996) *Česko-anglický slovník právních a obchodních termínů*. Havlíčkův Brod: Tobiáš.
- Sterkenburg, Piet, van, ed. (2003) *A Practical Guide to Lexicography*. Amsterdam: John Benjamins.
- Vedral, Jaroslav. (2002) *Anglicko-český slovník z oboru biotechnologie* Praha: JTP.
- Vlk, František (2001) *Anglicko-český odborný slovník motorových vozidel*. Brno: Nakladatelství Vlk.
- Wiegand, Herbert Ernst (1985) "Fragen zur Grammatik in Wörterbuchbenutzungsprotokollen. Ein Beitrag zur empirischen Erforschung der Benutzer einsprachiger Wörterbücher" In: *Lexikographie und Grammatik. Akten des Essener Kolloquiums zur Grammatik im Wörterbuch, 20-98*, ed. H. Bergenholtz and J. Mugdan. Tübingen: Niemeyer.
- Wiegand, Herbert Ernst (1988) "Was eigentlich is Fachlexikographie? Mit Hinweisen zum Verhältnis von sprachlichem und enzyklopädischem Wissen" In: *Deutscher Wortschatz. Lexikologischce Studien. Ludwig Erich Schmitt zum 80. Geburtstag von seinen Marburger Schülern, 729-790*, ed. H.H. Munske et. al. Berlin/New York: de Gruyter.
- Wright, Sue Ellen, Budin, Gergard, eds. (1997) *Handbook of Terminology Management*. Amsterdam: John Benjamins Publishing.
- Zgusta, Ladislav (1971) *Manual of Lexicography*. The Hague: Moulton.

Zgusta, Ladislav (1984) "Translational Equivalence in the Bilingual Dictionary" In: *LEXeter '83 Proceedings. Papers from the International Conference on Lexicography at Exeter, 9-12 September 1983*, ed. R.R.K. Hartmann. Tübingen: Niemeyer.