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## **Lingvo Universal English-Russian Dictionary: Making a Printed Dictionary from an Electronic One**

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*More and more users nowadays prefer electronic dictionaries to paper editions because of their convenience, easier access to different kinds of linguistic data, especially in the case of big professional dictionaries. This is why most of the popular paper dictionaries have their electronic versions. Nevertheless, printed editions are still popular with certain categories of users and even perceived by them as more trustworthy than purely electronic dictionaries. This paper describes the procedure of making a print version of the electronic English-Russian dictionary Lingvo Universal and shows different kinds of problems lexicographers dealt with at each stage of the project.*

### **1. Introduction**

In the year 1990 the first electronic English-Russian dictionary appeared in Russia. It was called *Lingvo* and had the following functionality:

- a convenient interface which enabled the user to see simultaneously the entry in the chosen dictionary, its word list and the text being translated or read;
- cross-reference links between the entries in the same dictionary;
- advanced search for a word, a word form or a multiword expression (MWE) in most zones of dictionary entries, the results of the search being shown for each zone of the dictionary entry;
- separate entries for semi-fixed phrases and collocations with unconventional translations;
- presentation of word forms for each of the one-word vocabables, separate entries for phrasal verbs and verbal syntagms (phrase syntax), etc.

At this point the company producing *Lingvo* launched its first lexicographic project and became the first commercial business to produce its own English-Russian dictionary in Russia. Now the company, *ABBY*, including a software company, a publishing house and a translation agency produces different kinds of dictionaries and carries out lexicographic research. The latest version of *Lingvo* software incorporates dozens of dictionaries of different languages, both bilingual and monolingual. Most of them are licensed electronic versions of high-quality paper editions, but some of them are the fruit of the company's own lexicographic research, such as *Lingvo Universal English-Russian Dictionary*.

Despite being a closed country for seventy years, Russia has a long tradition of bilingual lexicography and terminography based on the principles of linguistic science. There was a whole range of high-quality bilingual dictionaries published in USSR and in post-Soviet Russia including both general and terminological editions, such as *The Russian-English Dictionary* edited by A. Smirnitsky (first published in 1948), *The Russian-English Dictionary* by I. Yermolovich (published in 2004), *The Comprehensive English-Russian Dictionary (Bolshoi anglo-russky slovar', BARS)* edited by I. Galperin (first published in 1972), *The New Comprehensive English-Russian Dictionary (Novy Bolshoi anglo-russky slovar', NBARS)* edited by J. Apresjan (published in 1993), the latter being the most comprehensive lexicographic description of the English and Russian vocabulary of the time. However, since the advent of market economy, this long-established tradition has been under permanent threat. The situation can be explained by the specific character of the dictionary publishing industry in the USSR and in post-Soviet Russia. Unlike British publishing houses producing

dictionaries, Russian publishers hardly if ever had any lexicographers in their staff. Comprehensive dictionaries (bilingual and monolingual) were compiled by research teams from universities and scientific institutions, bilingual dictionaries of specialist terminology being compiled by individual authors. Individual authors and research teams signed contracts with publishing houses that edited those dictionaries and published them. But since the fall of the USSR, philology and linguistics have been, in general, neglected both by the previous main sponsor, the government, and by private sponsors seeking immediate return for their investment. It is quite logical that in such circumstances it has been almost impossible for a research institution to create a large research team capable of producing a really new comprehensive bilingual dictionary and thus start a costly and long-term dictionary project. As for the publishing houses, they cannot afford such a project either; consequently the situation is that comprehensive bilingual dictionaries appearing now in Russia are mostly compilations from earlier dictionaries presented as ‘new revised editions’.

This problematic situation however has resulted in the ‘movement’ of professional lexicography into software businesses, the latter having funds to invest in such projects. *ABBY* carries on the tradition of Russian professional lexicography by producing high-quality dictionaries of its own and licensing different kinds of dictionaries for its software product *Lingvo*, thus supporting other lexicographic projects beyond its control.

## **2. Some Words about Electronic vs. ‘Paper’ Lexicography**

Authors writing about electronic lexicography often stress the fact that present-day electronic dictionaries, including electronic editions of printed dictionaries, have richer content and present it in a more convenient way than printed ones. See, e.g., Atkins and Rundell (2008: 239), Atkins and Varantola (2008: 371). However, this is not true for all electronic dictionaries, many of which (especially electronic dictionaries published online, without being professionally edited) are quite often low quality and their content cannot compete with the content of quality printed dictionaries. That even made B.T.S. Atkins (2008: 31) say that only ‘books are the focus of professional lexicography, and the dictionaries discussed, reviewed, praised, or criticized are books’, not electronic editions. This is the reason why a lot of experienced users of dictionaries (researchers, translators and teachers) prefer authority ‘paper’ dictionaries or electronic versions of such dictionaries to purely electronic ones. And that was one of the reasons why, despite being a *software* company, *ABBY* in 2005 decided to publish its own printed dictionary based on the electronic *Lingvo Universal English-Russian Dictionary (Lingvo UERD)*. Producing a comprehensive printed dictionary was a matter of prestige for *ABBY*, but of course it was not the only reason for launching such a costly project. The printed format has its advantages; first of all, it can reach customers who rarely use computers (and, consequently, electronic dictionaries) or even do not own one. Moreover, it is widely believed that information printed on paper is better apprehended, so a printed dictionary is a good option for people learning a foreign language.

While making a printed dictionary from an electronic one is quite an unusual task, making a paper dictionary from an electronic database has become a norm nowadays. Nevertheless many more articles have been published on the subject of making electronic versions of printed dictionaries, than on the problem of making a ‘paper’ dictionary from an electronic one. See, e.g., Schmidt and Geyken (2008), Alegria et al. (2006), Haja et al. (2006), Atkins and Varantola (2008), etc. This seems quite logical, taking into account the above-cited opinion that electronic dictionaries compiled by professional lexicographers ‘all started life as books’ (Atkins 2008: 31). However it seems certain that future dictionaries will be mainly

electronic, because electronic dictionaries save space, provide easier access to different kinds of linguistic data, and electronic databases ensure more efficient team work for lexicographers. Traditional printed dictionaries will be sooner or later transformed into the kind of databases used to produce different kinds of dictionaries, including printed ones. The current article is going to describe a reverse transformation: that of an electronic dictionary database into a multifunctional database and later on into a printed dictionary. As a lexicographer involved in the project I'd like to report on it and to show different the kinds of problems we had to deal with.

### **3. *Lingvo UERD* and Its Printed Editions**

As already mentioned, *Lingvo UERD* was initially conceived as a purely electronic edition, part of the *Lingvo* software. It was based on *The English-Russian Dictionary* by V. Müller, one of the most popular English-Russian dictionaries of the past that was completely revised by ABBYY lexicographers and enriched by new examples from different Internet resources, such as the corporate forum '*Dobavim v Lingvo!*' ('Let's add it to *Lingvo!*'), where users of *Lingvo* software post their suggestions, from monolingual English dictionaries, classical and modern literature, texts related to different professional fields, and later on from the in-house linguistic corpora of ABBYY comprising 200 million words. It was designed as a comprehensive English-Russian dictionary for professional users and advanced learners. The first printed edition of the dictionary in two volumes was initiated in 2005, and the dictionary was published in 2007 by the publishing house *Russky yazyk* under the title *ABBYY Lingvo Comprehensive English-Russian Dictionary (Bolshoi anglo-russky slovar' ABBYY Lingvo, hereafter – BARS ABBYY Lingvo)*. The second edition in one volume was initiated in 2008 by the publishing house *ABBYY Press* and is currently being in press. The dictionary entries were edited in the in-house dictionary writing system (DWS) *ABBYY Lingvo Content*.

As the dictionary database grew further, it was transformed into a multifunctional database, used to produce different kinds of dictionaries, *Lingvo UERD* being just one of its possible products. That database is used, for example, to produce such dictionaries as *Lingvo Universal First Step* (an abridged version of the dictionary for mobile platforms), *Lingvo UERD* for schoolchildren (a more compact edition of the dictionary with fewer and shorter examples and without certain groups of lexemes, such as taboo and obscene vocabulary), as well as different printed dictionaries, *BARS ABBYY Lingvo* being the first printed edition based on its content.

### **4. Making a Printed Dictionary from an Electronic One: Typology of Problems**

While preparing the ground for the project we faced a whole range of problems which can be grouped into two categories and could be of interest to other lexicographers involved in similar projects.

#### **4.1. Problems related to different access to electronic vs. printed dictionary data and to different user tasks while accessing them**

##### **4.1.1. Data redundancy and data repetition in *Lingvo UERD* vs. space saving in printed dictionaries.**

Unlike such electronic dictionaries as *Oxford Advanced Learners' English Dictionary*, *Macmillan English Dictionary* and some others, *Lingvo* does not show a *page* of a printed dictionary reproduced electronically, it shows an *entry*. It should be noted however, that

*Lingvo UERD* is not the only dictionary available on *Lingvo* software. The latest version of it, *ABBYY Lingvo x3*, comprises 157 dictionaries of 11 languages. So, when entering a word, the user can see several entries from different dictionaries of a given language or a language pair at a time, but only one entry per dictionary:

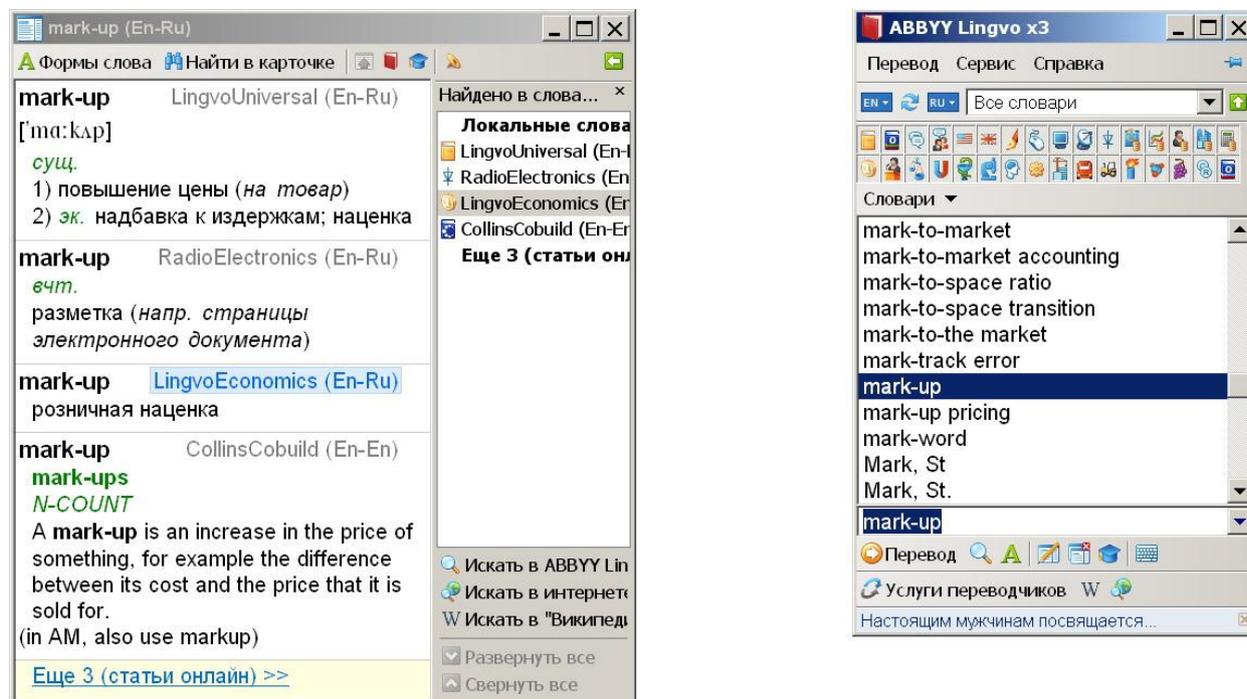


Figure 1. A view of *ABBYY Lingvo x3* application window with entries *mark-up* from four respective dictionaries: *Lingvo UERD*, *RadioElectronics English-Russian Dictionary*, *LingvoEconomics English-Russian Dictionary* and *Collins Cobuild Advanced Learner's English Dictionary*.

As a result, we have to repeat many kinds of information for the user's convenience, e.g. variant spellings, irregular forms. Such forms have their own entries referring to the main entry (e.g. *color* referring to *colour*) and they are also repeated in the main entry. Thus the user gets information about both forms regardless of the dictionary entry he/she accessed first (e.g. *color* or *colour*). Being convenient to the user of the electronic dictionary, such presentation of linguistic data is a problem in its printed version, because it takes up additional space and, consequently, enlarges the volume of the printed dictionary. The problem was solved by means of special tags that excluded parts of information presented in the electronic dictionary from its printed edition. The same tags are also used in the dictionary database to abridge longer translation comments and explicative translations (glosses) for the needs of the printed dictionary and to exclude long example phrases (usually literary quotations) from the entries of *BARS ABBYY Lingvo*.

#### 4.1.2. The different structure of word lists in *Lingvo UERD* and in printed dictionaries

(a) In printed bilingual dictionaries, as in some monolinguals, proper names (geographical and personal) are usually placed in the appendix. That is not the case with *Lingvo UERD* and with its electronic database where they are all included in the general word list. It should be mentioned however that the dictionary includes only personal English names that can present some difficulty for translation or be of interest for a Russian-speaking user. For example, *Mary* is used in English (1) as a popular personal name, (2) as the name of various biblical characters, (3) as the name of the Virgin Mary. As a popular personal name it is often transliterated into Russian as *Мэри*, but as the name of biblical characters and the Virgin Mary it is substituted by the Russian form *Мария* (*Maria*). That is why this personal name

was included in the dictionary. When dealing with the problem we decided to keep this feature of the electronic dictionary in its printed version, i.e. to keep such entries in the main word list.

(b) The *Lingvo UERD* word list also includes some fixed and semi-fixed phrases, phrasal idioms and even collocations with unconventional translations. Such MWEs have their own entries in the DWS database, but unlike compounds that are generally presented as entries both in bilingual and in monolingual dictionaries, they do not have any part of speech (POS) labels, and the link to such an entry is placed in the appropriate zone of the core word. The core word entry of the electronic dictionary is thereby a hypertext, so transforming it into a printed entry entails inevitable losses.

Though being in contradiction with certain rules of professional lexicography, such presentation of this particular kind of information is convenient for a user and provides easier access to dictionary data. Thus, for instance, the MWE *capital city* has its own entry in *Lingvo UERD* because it is translated by one Russian word *столица* instead of a word combination, and is of interest for a Russian-speaking user. However it is not a compound, it does not have any POS label, and the link to this entry is placed in the database in the set phrases zone of the core word *city*. In order to solve the problem we had to create an export algorithm that enabled us to convert such entries of *Lingvo UERD* into word combinations within the core word entries of its printed edition:

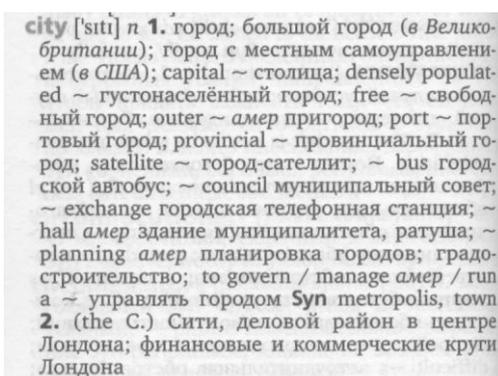


Figure 2. The entry *city* in *BARS ABBYY Lingvo 2007* with *capital city* as a word combination.

Using this export algorithm we managed to exclude such MWEs from the word list of the printed dictionary and to transform them into usage examples. Though such presentation is rather a loss, we had to comply with it anyway, due to the strict space limits of the printed edition.

#### 4.1.3. Different means of visualization of labels, abbreviations, entry zones etc in *Lingvo UERD* and in printed dictionaries

Space limits are not as tough in the case of an electronic dictionary as they are for a printed edition, so instead of labels full word forms can be used, and there are no tildes. Such presentation of linguistic data is believed to be more user-friendly and has been chosen, e.g. in the electronic versions of *The Longman Dictionary of Contemporary English* and *Oxford Advanced Learners' Dictionary*.

(a) Labels in *Lingvo UERD* are not replaced by full word forms, but they are different from those used in bilingual printed dictionaries published in Russia:

- POS and grammar labels are abbreviated forms of the Russian words, not international Latin symbols, as in printed and many electronic dictionaries;
- register, sphere and style labels are shorter than those used in printed dictionaries because in *Lingvo* they are provided with pop-ups showing full forms of abbreviations.

(b) The tilde is not used in *Lingvo UERD* and markers of entry zones are different from those used in printed dictionaries: e.g., the zone of idioms is usually marked by a rhombus in printed dictionaries, and in *Lingvo UERD* idioms are placed after bold double dots.

(c) Some types of information (e.g. different capitalization of the headword in one of its meanings, defectiveness of its paradigm in one of the meanings etc) is also presented in *Lingvo UERD* in a way different from printed dictionaries, at least those printed in Russia.

The problems listed above were solved by means of export adjustments. New export algorithms applicable to different kinds of dictionaries were added to the latest version of the *DWS ABBYY Lingvo Content*.

#### **4.2. Problems related to the specific character of the *Lingvo* software format, i.e. specific problems of the dictionary**

The problems discussed above are more or less common to different kinds of electronic vs. printed dictionaries. Those listed below are specific to the *Lingvo* software format.

##### **4.2.1. Different types of the entry structure in *Lingvo UERD* and in printed dictionaries**

(a) The entry structure in *Lingvo UERD* has specific features, such as a specific way of presenting lexical and grammatical homonymy, lexical senses and sub-senses. Thus, unlike printed comprehensive academic dictionaries published in Russia, *Lingvo UERD* does not use superscripts to mark lexical homonyms, and uses Roman numerals as markers of lexical homonyms, unlike those traditional printed dictionaries where they often mark grammatical homonyms. In order to fit the entry structure of *Lingvo UERD* to the usual format of a printed dictionary and not to confuse the Russian user accustomed to another structure of dictionary entries we had to register all the differences between the electronic dictionary and the ‘paper’ format and to improve the interface of the DWS. The latest version of it enables the user to choose markers for each level of a dictionary entry, be it a Roman or Arabic numeral, a superscript etc, before exporting dictionary data into RTF or any other chosen format.

(b) Besides the presentation of lexical and grammatical homonymy, lexical senses and sub-senses, *Lingvo UERD* has some other specific traits, such as a *different set of entry zones* in comparison with printed comprehensive dictionaries, at least those printed in Russia, *different mark-up of the zones*. There are also some kinds of information included in this electronic dictionary but absent in printed editions, e.g. sound files demonstrating the pronunciation of a headword by a native speaker, links to other dictionaries in the same dictionary software, and web-links.

*Lingvo UERD* has the following zones:

- *pronunciation zone* containing transcription, labels marking regional variants of pronunciation and links to sound files;

- *classifier zone* or *additional information zone*<sup>1</sup> including different kinds of information related to any of the entry levels (lexical or grammar homonym, sense or sub-sense). The classifier zone may contain labels, heading forms, etymological information, irregular inflexion patterns, etc;
- *translation zone* which may include sub-zones or microzones, such as translation comments and links to other dictionary entries and sub-entries;
- *descriptive translation zone* containing explicative translations (glosses) of the terms that do not have translation equivalents in Russian. This zone is only important for the dictionary database, because it makes it possible to distinguish between translation equivalents and explicative translations (glosses), if we have to produce a Russian-English dictionary based on the data of this English-Russian database. Explicative translations are excluded from the word list of such a dictionary;
- *example zone* containing free phrases which do not present difficulties for translation, as well as example phrases and literature quotations;
- *set phrases zone* containing fixed and semi-fixed phrases (such as *ham and eggs*, *kith and kin*), as well as collocations with unconventional translations (e.g. *young people* – молодёжь, *city people* – горожане [translated into Russian by one word instead of a word combination]). Such MWEs have their own entries in the database, called *sub-entries*, but they do not have any POS labels, and the link to such an entry is placed in the set phrases zone of the core word. It has been reported that apart from specialized collocation dictionaries, many current electronic dictionaries assign to MWEs the status of simple usage examples, while they should be promoted to the status of ‘second level treatment units’ (Spohr 2008: 618; Heid and Gouws 2006: 982). The set phrases zone makes it possible to separate such MWEs from free phrases, example phrases and literature quotations. It should be mentioned anyway that when compiling a bilingual dictionary it is not so easy sometimes to distinguish between fixed or semi-fixed phrases, on the one hand, and collocations with unconventional translation, on the other. Thus, for instance, *abandoned call* is perceived as a collocation or a free phrase by an English-speaking person and as a fixed phrase or even as an idiom by a Russian speaker, because the meaning of the English word combination and namely that of the adjective *abandoned* in this context is not evident for the latter, the same notion being expressed in Russian in quite a different way (*несостоявшийся разговор* – ‘a call that did not take place’). The set phrases zone can be placed in the dictionary at the level of a word sense, sub-sense or a grammar homonym;
- *zones of synonyms and antonyms*. Synonyms or antonyms may be ascribed to a headword sense / sub-sense or the entry in general, but MWEs having their own entries (or sub-entries), i.e. fixed and semi-fixed phrases and idioms may also have (near) synonyms and antonyms in *Lingvo UERD*;
- *unrelated word combinations zone* containing proverbs and idioms with no fixed canonical form (see Atkins and Rundell 2008: 168). The proverbs and MWEs placed in this zone do not have any sub-entry in the dictionary and look like example phrases in the window of the electronic dictionary. Anyway there is a difference between ordinary usage examples and word combinations placed in this

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<sup>1</sup> The names of entry zones listed in this section are terms used in the DWS *ABBY Lingvo Content* for the convenience of the users. Thus, *classifier zone* contains information that distinguishes a vocable, a sense or a sub-sense in question from others, and *unrelated word combinations zone* contains idiomatic expressions that are not connected with any of the core word senses and, unlike ‘ordinary’ idioms, have no fixed canonical form.

zone, the latter being placed before the zone of idioms, at the end of a dictionary entry;

- *zone of idioms*. This zone comprises active links leading to phrasal idioms that are sub-entries in the dictionary:

[*expr*]to set one's cap at / for smb.--[*trn*]задумать женить кого-л. на себе, иметь виды на кого-л.[/*trn*]/[*expr*]  
[*id*]<<cap in hand>>[/*id*]



Figure 3. A view of two respective entry zones (that of unrelated word combinations in tags [*expr*] and idioms in tags [*id*]) in the DWS *ABBYY Lingvo Content* and in *Lingvo UERD* in the entry *cap* (noun).

As distinct from *Lingvo UERD*, printed bilingual comprehensive dictionaries have fewer zones. Thus, for example, they do not have any specific zone for proverbs and idioms with no fixed canonical form; most of them (or at least those published in Russia) do not have zones of synonyms and antonyms either. As for collocations, fixed and semi-fixed expressions, they are quite often assigned the status of usage examples. At the same time, more attention is paid to the sequence of usage examples in the appropriate zone, MWEs being presented in alphabetical order, word combinations preceding the usage examples in the form of full sentences and literature quotations.

In order to convert the microstructure of *Lingvo UERD* into the format acceptable for printed dictionaries we had to inventory all kinds of differences between the formats and to adjust the export.

#### 4.2.2. Problem of sub-entries

It has been already mentioned above that *sub-entries* in *Lingvo UERD* are entries without any POS labels (except for phrasal verbs labelled as such). Their headwords are placed into the set phrases zone or idioms zone of the core word. In the electronic dictionary entry they look like active links leading to separate entries, so the core word entry is represented as a hypertext.

This feature is very convenient for the user of the electronic dictionary, but not of the printed one. In the printed version sub-entries are normally transformed into simple usage examples or idioms within the core word entry. Meanwhile there are a lot of links in the electronic database (preceded by the label *см. тж. – see also*) referring to such sub-entries. You can imagine a user of the printed dictionary searching through the core word entry to find the MWE he was referred to, especially if the entry is long. In order not to inconvenience the users of the printed edition, we had to exclude from it all such reference links.

As was shown above, most of the problems we had to deal with in the framework of the project were solved by means of export algorithms or improvements made to the DWS interface. However, the success of exporting into another format is only ensured by maximum formalization of the dictionary data. But as there were some inconsistencies in *Lingvo UERD*

determined by specific circumstances of its development, export bugs were inevitable. So we had to divide the dictionary-making process into three main stages:

- 1) editing and revising the dictionary content in the DWS, according to the style guides. This part of the job was done by *ABBYY* lexicographers. The aim of this stage was to formalize the dictionary content;
- 2) transfer or export of the dictionary content into RTF. This part of the job was done by means of the DWS *ABBYY Lingvo Content* with the assistance of *ABBYY* programmers;
- 3) checking the resulting files and correcting the export mistakes by the editors of the publishing house.

## 5. Conclusion

Present-day dictionary databases tend to include as much linguistic data as possible in order to be used as a basis for different kinds of dictionaries, including printed editions. As an electronic database is in fact a big hypertext comprising multiple links and different kinds of specific data which cannot be exported to the 'paper' format, making a paper dictionary from such a database may be quite a challenging task. Working hand in hand with the publishing house editors enabled us to minimize the inevitable losses resulting from such a procedure. The other result of this work was the creation of a printed dictionary more in line with the needs of modern users, enriched with colloquial vocabulary, computer and networking vocabulary, and cultural information, presented in a more convenient and user-friendly way.

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