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Abstract	While still not in the mainstream of language learning and teaching, corpora over the last two decades have grown substantially in size and number, tools to manipulate them have become more sophisticated and user-friendly, and several corpus-based dictionaries and grammars

have been published. The field of Language for Specific Purposes (hereafter, LSP) teaching, a rapidly growing market and an industry-relevant branch of language pedagogy for which there is a lack of "conventional" printed teaching materials, can benefit considerably from a corpus-based approach. In this chapter, we present how we use corpora to teach a business Russian course at the University of Leeds, UK. In the first part of the chapter, we describe how, on the IntelliText project (http:corpus.leeds.ac.uk/it), we have simplified our existing corpus interface in order to make it accessible to users with no training in or background knowledge of computational or corpus linguistics and implemented functions to meet the demands of a wide range of users in the humanities. Then we look at how some of these specific corpus-based tools and functions can be used to facilitate and enhance two core LSP-based skills: vocabulary acquisition and register recognition and differentiation. In addition, we present sample exercises that we use to support our corpus-based tools in order to maximise their effectiveness in LSP teaching as well as in learning and teaching more generally.

Chapter 10
Innovative Methods for LSP-Teaching: How We Use Corpora to Teach Business Russian

[AU1] **James Wilson, Serge Sharoff, Paul Stephenson, and Anthony Hartley**

10.1 Introduction

In the last two decades much work has been carried out on corpus development; many large corpora, both general reference and specialised, have been created and user-friendly tools that allow non-specialist users to perform complex corpus queries and even build their own corpora have been developed. Consequently, we have seen an influx of corpus-based resources, in particular dictionaries, such as the *Collins Cobuild English Language Dictionary* (1995) and the *Cambridge Advanced Learners Dictionary* (2008), and grammars (Biber et al. 1999; Willis 2004), and the *indirect* impact of corpora in language learning and teaching has been considerable. Conversely, the *direct* impact of corpora in the language learning classroom has been less impressive, especially in Foreign Language Teaching (FLT), and we might argue that little progress has been made since Tim Johns' work on Data Driven Learning (DDL) in the 1980s and 1990s (see, for example, 1991a, b, 1993). That is, few tutors make active use of corpus-based exercises or use corpora in their classes. Despite the abundant general literature on corpora (e.g. McEnery and Wilson 1996; Biber et al. 1998; Adolphs 2006; Anderson and Corbett 2009; O'Keeffe and McCarthy 2010) and the rapidly growing literature on the application of corpora in

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22 language teaching (e.g. Sinclair 2004; Aston et al. 2004; Hidalgo et al. 2007; Aijmer
23 2009; Bennet 2010; Reppen 2010; Harris and Moreno 2010; Frankenberg-Garcia
24 et al. 2011), the use of corpora for pedagogical purposes has not become an
25 established practice. In fact, many language tutors are not sure what corpora
26 are (Mukherjee 2004) or what they may be used for (McCarthy 2008). Tutors who   [AU2]
27 use corpora in their teaching form a small and generally expert community, and
28 even they tend to use corpora predominantly as a source of reference for checking
29 their language intuition and therefore do not exploit the available technology to
30 the full. Most work has been done on the use of corpora in English Language
31 Teaching (ELT) (e.g. Braun et al. 2006; O'Keeffe et al. 2007; Bennett 2010;
32 Campoy et al. 2010; Frankenberg-Garcia et al. 2011) and, increasingly, on learner
33 corpora (Aijmer 2009), while FLT has remained almost untouched by the corpus
34 "revolution". Furthermore, even for ELT many works in the literature reflect
35 corpus linguists' research interests in language use and many corpus-based examples
36 are chosen because they are linguistically interesting, not because they are
37 pedagogically relevant.
38   This is unfortunate in that a corpus-based approach to language learning and
39 teaching has many benefits for both tutors and their students. Corpora can have a
40 considerable positive impact on Language for Specific Purposes (hereafter, LSP)
41 teaching, a rapidly growing market that is particularly relevant to the linguistic
42 needs of industry but for which there is a lack of conventional printed teaching
43 materials. Using corpora alongside established teaching practices, we can offer
44 tuition in several LSP domains and tailor our curricula to the needs of industry and
45 increase the employability of our graduates. Our case study is a business Russian
46 class offered at the University of Leeds; we demonstrate how we use corpora in our
47 language classes and in what ways a corpus-based approach is particularly well
48 suited to business Russian and other LSP subjects.
49   The business Russian class is part of an applied Russian language module that is
50 taken by students in their third year of study (having returned from a term or year in
51 Russia) and it prepares students for work in industry. Several topics are covered on
52 the course; these include: formal letter writing, CVs and covering letters, business
53 presentations, sales pitches, and official telephone conversations. While such a
54 module is of particular relevance to students intending to work in Russia upon com-
55 pleting their degree, tutors found it hard to structure and deliver because there are
56 few relevant teaching materials. Similarly, students expressed that, unlike for their
57 other subjects, there was not a (single) course book containing all or most of the
58 materials relevant to the business Russian module. Students need access to notes on
59 business-specific terminology and conventions in formal etiquette and style as well
60 as sample official documents of various kinds (CVs, covering letters, letters of com-
61 plaint, etc.) – documents which students are expected to produce in class tests and
62 for homework assignments (as well as in "real-world" scenarios beyond the degree).
63 Before introducing corpus-based materials to the module we relied heavily on
64 web-based material, which was gleaned from many Russian-language websites
65 and needed to be adapted for pedagogical purposes, and we also studied materials

from books on business Russian and official written discourse produced in the Czech Republic (and intended primarily for Czech learners of Russian).[1] Although concerns over the lack of adequate teaching materials were voiced specifically about business Russian, we might argue that there is a dearth of printed materials for other LSP subjects and for other languages, especially though not exclusively for less commonly taught ones.

[AU3]

Two principal skills that we look to train on the business Russian module are: (1) vocabulary acquisition and (2) register recognition and differentiation. Although students taking the applied Russian module have spent 9 months in Russia, the business Russian class is their first real experience of formal writing. The core lexicon of business Russian is different to that of other genres that students are already familiar with, and many important discipline-specific words and phrases are not found in standard dictionaries or other language learning resources that students use. Furthermore, even at the (upper-)intermediate level, students are not fully competent in recognising and successfully differentiating between different varieties of written Russian. They tend to struggle in formulating official documents, as they are unfamiliar with formal salutation and valediction, higher-level grammatical and syntactic constructions and generic or discipline-specific formal clichés. As the students already possess generic language learning skills and have a solid grounding in general written Russian (grammar, vocabulary and syntax) when they enrol on the course, the task of acquiring a discipline-specific lexicon and specific morphosyntactic constructions should be straightforward, provided that there is a reliable means of identifying the vocabulary and register of a particular LSP domain. In fact, assessment shows that students encounter few problems in learning terminology specific to business Russian; however, tutors' task of compiling lists of discipline-specific terminology and constructions, given the lack of resources, is time-consuming and laborious.

Our aim is therefore to use corpora to facilitate vocabulary acquisition and to enhance students' ability to recognise formal expressions and use them in an appropriate context. We describe herein how corpora can be used to compensate for the lack of printed materials, how they facilitate tutors' task of designing relevant materials and how a corpus-based approach is particularly relevant to LSP teaching. This study contributes to the literature on the application of corpora in language learning and teaching and, more specifically in FLT and in LSP domains, by showcasing the work we have done, both from a technological perspective to enhance possibilities for manipulating corpora for pedagogical purposes and from a pedagogical perspective to develop materials to utilise the technology more fully. We demonstrate how we have simplified our existing corpus-based tools and enhanced them to facilitate and enhance teaching and research across the arts and

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[1] These books include several recent publications that focus on Russian in the spheres of commerce, law, international relations and administration (Dynda and Dyndová 1998; Kupcevičová and Vilímek 2006; Mrověcová 2007; Dlouhá 1998; Golčáková 2008; Rezková 2008).

105 humanities. More specifically, we focus on the application of our tools in the
106 business Russian class and describe how tutors and students may use our tools to:

107 1. generate frequency lists of business-related keywords;
108 2. automatically extract lists of business-related collocations;
109 3. search for affixed and compound forms;
110 4. automatically classify texts according to genre and domain;
111 5. rank concordance lines according to their level of difficulty;
112 6. collect their own corpora of business texts and official documents and analyze
113   them using the functions that are available in our interface.

114 We then present examples of how the individual search options in the IntelliText
115 interface (see Sect. 10.2) are used to train vocabulary acquisition and register
116 recognition and differentiation – skills that are essential for any LSP domain – and
117 to enhance students' language competence more generally. Finally, while our
118 focus is on technological advances in corpus development and the application of
119 corpus-based tools in LSP teaching, part of our chapter is devoted to material design
120 and reports on our efforts to create corpus-based language exercises to complement
121 and support our tools and that allow students to exploit the available technology
122 more fully.

10.2 Simplifying and Enhancing Corpora for Teaching

124 In most cases, corpora are not conceived or designed for the language learning
125 classroom but are usually intended for a specialist, technologically savvy target
126 audience. This means that for pedagogical purposes corpora must be simplified and
127 adapted in various ways in order to become established in the mainstream and to be
128 accepted by language tutors. Large collections of electronically-stored texts,
129 especially those that are not annotated, are of little practical value to language tutors
130 or their students. The same holds for the output of a corpus search: other than for
131 reference, a list of concordance lines is of little use. A corpus that is parsed and
132 tagged is more useful; language learners can make more elaborate corpus queries
133 and search for, say, a noun in a particular case, a verb in a particular tense or a multi-
134 word expression. However, to perform more complex searches language learners
135 often need to be familiar with complex regular expressions and competent in using
136 computer syntax, as many interfaces require grammatical information to be typed in
137 as a string code. Assume that a language learner wants to see which adjectives are
138 commonly used in the expression *to make an impression* between the words *an* and
139 *impression*. In our former interface (http://corpus.leeds.ac.uk/internet.html) he or
140 she would have needed to enter the following string code (CQP syntax):

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$$\left[\text{lemma = "make"}\right]\left[\text{pos = "DT"}\right]\left[\text{pos = "JJ"}\right]\left[\text{word = "impression"}\right]$$

The string tells the regular expression processor to look for any form of *make*, a determiner (DT) – this allows for an article before the adjective; a more specific search for examples that occur with the indefinite article could be achieved by replacing [pos="DT"] with [word="a"] – an adjective (JJ) and the word *impression*. Even one-word searches in which the search word is in a particular grammatical case may require a complex code in highly inflected languages. Take the Russian word *работа* "work" in the dative singular case (*работе*), for example. Users would need to know the following string code in order to search for this form:[2]

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[lemma="работа"&pos="Ncfsgn*"] (or [lemma="работа"&pos="N..sg.*"])

Without clear and comprehensive instructions, these searches would be beyond the competence level of most untrained users and such a counter-intuitive method overwhelms many non-specialists. Moreover, until recent years the main target audience for the outputs of research on the development and use of corpora has been the immediate specialist community of computational and corpus linguists; therefore, user documentation is in some cases inaccessible to users from other disciplines.

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A second and equally serious problem concerning the use of corpora for pedagogical purposes is that the content of many of the examples that the concordancer generates is too difficult for all but advanced students. This is certainly true in the case of languages that are taken up from the ab-initio level at British universities such as Russian, Arabic and Chinese. Or many examples that are generated are not pedagogically relevant, and in preparing their notes or exercises language tutors might have to sift through hundreds of examples to find just one or two appropriate ones. Therefore, tutors may find it quicker and easier to produce materials on the basis of their intuitions rather than taking examples from corpora. For teaching and learning purposes, tutors and their students need to be able to refine their search by filtering concordance lines according to several parameters (difficulty, genre, domain, grammatical features, and other categories). Language tutors and learners also require additional functions such as frequency lists, lists of useful collocations and the option to search for affixed forms, display their search word in various positions within a sentence, compare words and phrases within and across corpora, and so on.

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It is evident from the above that there are two issues that need to be taken into account if corpora are to be enter the mainstream of language learning and teaching. First, corpus tools need to be made simple so that non-specialists can use them. Second, corpus-based tools and functions need to be developed specifically for a target audience of language tutors and learners. Language learners require specific

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[2] There is a reasonably high degree of syncretism in the Russian case system and *работе* is both the dative and preposition singular form. Users could not therefore simply enter *работе* as a word form, unless they did not need to restrict their search to a particular case.

Fig. 10.1 Russian Part of Speech (POS) editor

Part of Speech	Case	Gender
Noun	Nominative	Masculine
Verb	Genitive	Feminine
Adjective	Dative	Neuter
Pronoun	Accusative	Common
Adverb	Prepositional	**Animate**
Preposition	Vocative	Yes
Conjunction	Instrumental	No
Numeral	**Noun Type**	**Number**
Particle	Common	Singular
Interjection	Proper	Plural
Degree	**Verb Form**	**Tense**
Positive	Indicative	Present
Comparative	Imperative	Future
Superlative	Conditional	Past
	Infinitive	**Person**
	Participle	First Second Third
	Gerund	
Other	**Aspect**	**Voice**
End of Sentence	Imperfective	Active
	Perfective	Passive
	Biaspectual	Medium

178   options for building corpora and generating frequency lists, and they require a more
179   elaborate, yet user-friendly, annotation system for classifying texts and individual
180   concordances and collocations according to several parameters.
181   We have already taken steps to address these demands on the Intelligent Tools for
182   Creating and Analysing Electronic Text Corpora for Humanities Research
183   (IntelliText) project (Wilson et al. 2011) carried out at the Centre for Translation
184   Studies at the University of Leeds. The broad aims of the project were (1) to make
185   our corpora and corpus-annotating software simple to use and accessible to a wide
186   and diverse group of users and (2) to create a versatile and intuitive interface with
187   tools and functions aimed at enhancing and facilitating the work of teachers and
188   researches in various areas of the humanities. Our four targeted disciplines were
189   language learning and teaching, translation studies, linguistics and history, and
190   we liaised with academics from these disciplines to receive their advice and
191   guidance on the features that should be implemented in our interface. Most of our
192   collaborators, mainly academics with little or no experience in using corpora in
193   their teaching or research, emphasised the importance of a simple and intuitive
194   interface that is supported by clear and comprehensive documentation including
195   discipline-specific tutorials.
196   With the aim of making our interface more intuitive and user-friendly, we have
197   implemented a part-of-speech (POS) editor that allows users to add grammatical
198   information to their search by ticking check-boxes (see Fig. 10.1), rather than by

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Fig. 10.2 Search builder

manually typing out complex string codes. We have also simplified multi-word searching by developing a search builder (see Fig. 10.2) that allows users to formulate complex queries, including searches involving specific and non-specific intermediates, and to specify whether their search word is a lemma or not. Other functions developed and implemented on the IntelliText project are discussed below in the context of their application in LSP teaching. 199 200 201 202 203 204

We are also tackling the second problem outlined above and, acting on the advice of language tutors, we have made several modifications to our interface that directly benefit language learning and teaching. Users may search for words in various places in a sentence, display their search words at the start, end or in the middle of a concordance line, search for affixed forms of words without needing to know string codes or symbols (see Sect. 10.3.1.3) and compare the use of two or more competing words or phrases. To support the general IntelliText user guide we have also created language-specific tutorials for English as a Foreign language, Japanese and Russian, which provide sample searches for and exercises on 205 206 207 208 209 210 211 212 213

214   linguistic issues relevant to these languages.[3] With respect to developing a more
215   sophisticated annotation system, we are researching possibilities for classifying
216   texts and individual concordance lines (see Sect. 4.2) according to their level of   [AU4]
217   difficulty and we have compiled corpora stratified according to topics studied by
218   students at UK institutions at levels 2 and 3 for German, Japanese and Russian.

10.3   Corpus-Based Approaches to Language Learning and Teaching

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221   As corpora are a fairly new addition to the teaching toolkit, many users are unaware
222   how to use them, what to use them for or what benefits they bring to learning and
223   teaching (McCarthy 2008). This is not surprising in that, despite recent progress
224   in EFL, little has been done to promote corpus-based learning among the wider
225   language learning community. This is unfortunate, as we believe that a corpus-based
226   approach to language learning can supplement and extend the effectiveness of existing
227   teaching materials. Using corpora, students and tutors can:

228   • view grammar in context;
229   • display complex grammatical forms not shown in conventional bilingual
230   dictionaries;
231   • access hundreds of authentic examples at the touch of a button;
232   • view vocabulary in a broader context, extracting common and useful colloca-
233   tions that are beyond the remit of printed resources;
234   • grasp subtle differences between words and phrases;
235   • verify their linguistic intuition;
236   • achieve a better grasp of style;
237   • augment their vocabulary, in particular on themed topics and in specific domains;
238   • test controversial points of grammar and compare prescribed grammar with
239   actual language use.

240   More specifically, in LSP teaching corpora can be used to train specific language
241   skills and in some cases can go beyond the remit of printed resources. Here we look
242   specifically at their application in the context of the business Russian module and
243   how they may be used to train vocabulary acquisition and register recognition and
244   differentiation. Even in the largest dictionaries and the most comprehensive gram-
245   mar manuals only a few phrases, collocations and constructions are shown (in some
246   cases out of context), and the information given may be insufficient for language
247   learners to fully grasp how a particular word or grammatical feature is used in
248   context. Corpora, on the other hand, are made up of hundreds of authentic language
249   examples and collocations, thus language learners may view problematic words or
250   grammatical forms in hundreds of sentences and in different types of text and context.

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[3] http://smlc09.leeds.ac.uk/itweb/cmsimple/?Sample_Corpus_Searches_%28Russian%29

Moreover, printed materials tend to cover only the main LSP domains, as it is   251
financially impracticable to publish books on topics that do not have a wide target   252
audience, and they cannot represent current affairs. From corpora, however, tutors   253
may develop materials and create ad-hoc exercises for highly specific topics or to   254
create vocabulary lists on current topics that students can use to describe events that   255
are taking place at the present time. In fact, tutors may create materials for any topic,   256
provided that enough written material is available for that topic. For example, for   257
our final-year core Russian language module we created corpora of texts on the   258
Tsunami that occurred in Japan in March 2011 and on the Libya Crisis and the death   259
of Muammar Gaddafi from Russian-language newspaper articles available online.   260
We use these and other corpora, built in the same way, and exercises based on their   261
content to augment students' vocabulary and to train students to discuss topics, both   262
orally and in writing, using sophisticated and stylistically appropriate words, phrases   263
and constructions. In fact, tutors may create materials for any topic, provided that   264
enough written material is available for that topic.   265

10.3.1 Vocabulary Acquisition   266

In this section, we shall focus on three corpus-based methods of vocabulary acquisi-   267
tion: (1) frequency lists, (2) collocation extraction and (3) compound and affix   268
searching. We shall also describe how tutors and students can use our tools to create   269
DIY corpora and use these corpora to extend their vocabulary on themed topics.   270

The acquisition of a core, discipline-specific vocabulary can provide a solid basis   271
for creating materials for modules such as business Russian, French for lawyers,   272
Spanish for medics, and other LSP-based subjects, whose core lexicon differs mark-   273
edly from that required for "general" language learning and many key phrases of   274
which are not found in standard bilingual dictionaries. Tutors can quickly build their   275
own corpora for various LSP domains, no matter how specialised, and then generate   276
frequency lists of the most common words and phrases in these corpora. The benefits   277
of this approach were clearly demonstrated by Butler (1974). Butler used frequency   278
lists extracted from a small corpus (94,000 words) of systematically selected   279
chemistry papers to "permit second-year chemistry undergraduates (or postgraduates),   280
with no previous knowledge of German, to read papers from German chemical   281
journals for comprehension and, where necessary, for translation" (50). Using   282
exercises built around the most frequent words and collocations from his   283
"chemistry" corpus, Butler aimed to equip his students with the requisite reading   284
skills within 10 teaching hours (plus 20 h of independent study). The results were   285
"gratifyingly successful" (53). Butler's methodology can be extended to other   286
languages and to other LSP domains.   287

We are currently testing a similar methodology on the AHRC-funded   288
ReadingCorp (A corpus-based approach to achieving reading competence in   289
Russian) project that is being carried out at the Universities of Leeds and Sheffield.   290
Building on previous research carried out on the CEELBAS-funded Russian for   291

292 Research project,[4] on which we indentified that existing postgraduate (PG)
293 language provision at many institutions is inadequate and many potentially good
294 researchers are consequently slipping through the net, we aim to test whether a
295 corpus-based and vocabulary-oriented approach can be used to provide PhD students
296 with little or no knowledge of Russian the necessary reading skills to comprehend
297 primary texts in their area of research. Keyword lists are extracted from two special-
298 ised corpora: a general academic corpus made up of academic articles in areas of
299 interest specified on the Russian for Research project and a smaller corpus of texts
300 directly relevant to the students' research topic. Besides producing an extensible
301 methodology and discipline-specific exercises, we shall also deliver an online
302 grammar of Russian specifically for researchers in which emphasis lies firmly on
303 the identification of common grammatical structures in academic texts selected
304 from corpus-based frequency data.

305   Quick acquisition of discipline-specific vocabulary is highly desirable in LSP
306 teaching, as in the above-mentioned case of PhD students who need to learn a
307 foreign language from scratch for their research. Intensive undergraduate ab-initio
308 programmes are not suited to researchers' language needs; much of the material
309 covered at Level 1 is of little relevance to researchers, while many important points
310 of grammar and language use (from the researcher's perspective) are not covered.
311 Gaining the necessary reading competence to understand academic texts is quite
312 straightforward: academic texts are characterised by lexical and stylistic repetition;
313 therefore, corpus-derived frequency lists can be particularly effective, as Butler
314 demonstrated. The same holds for grammar: teaching can be structured around the
315 grammatical constructions that occur most frequently in academic texts and training
316 need not involve production and correct use of these forms, but simply the ability to
317 recognise them and know what purpose they serve. As specialised intensive language
318 for research courses are not practicable at many institutions (especially in the case
319 of less commonly taught languages) and there are concerns over the sustainability
320 of established courses, new, cost-effective modes of delivery are highly sought after.
321 A corpus-based, vocabulary-oriented approach is a realistic and inexpensive way of
322 training or improving reading skills quickly and effectively.

10.3.1.1   Frequency Lists

324 Until recently, tools for extracting frequency and keyword lists from corpora
325 belonged to the exclusive domain of computational linguists and non-specialists
326 needed technical assistance to produce them. Nowadays, however, a standard fea-
327 ture of many corpus interfaces is a built-in and easy-to-use frequency list generator.
328 Users can use our tools to generate lists of single- or multi-word terms and they can
329 generate both frequency and keyword lists from the corpora available through our

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[4] http://www.ceelbas.ac.uk/research/networkprojects/funded2007 (project CN07SF-1).

t1.1   **Table 10.1**   Russian keywords sorted by the Log-likelihood score of their significance

	Single words	Multiwords
t1.2	Single words	Multiwords
t1.3	банк (bank)	ценные бумаги (securities)
t1.4	предприятие (enterprise)	юридическое лицо (organisation)
t1.5	кредит (credit)	денежные средства (monetary assets)
t1.6	договор (contract)	федеральный закон (federal law)
t1.7	товар (product)	заработный плата (salary)
t1.8	рынок (market)	бухгалтерский учет (accounting)
t1.9	финансовый (financial)	земельный участок (land plot)
t1.10	налог (tax)	акционерное общество (public company)
t1.11	страхование (insurance)	рынок ценных бумаг (capital market)
t1.12	цена (price)	основные средства (fixed-capital assets)
t1.13	учет (accounting)	фондовая биржа (stock exchange)
t1.14	ценный (valuable)	процентная ставка (interest rate)
t1.15	денежный (money-adj)	фондовый рынок (stock exchange)
t1.16	имущество (property)	арбитражный суд (arbitrage)
t1.17	налоговый (tax-adj)	недвижимое имущество (real estate)
t1.18	прибыль (profit)	система управления (system of management)
t1.19	государственный (state)	налоговые органы (tax authorities)
t1.20	страховой (insurance-adj)	договор страхования (insurance contract)
t1.21	стоимость (cost)	инвестиционный фонд (investment fund)

interface or from corpora that they upload to it. A frequency list is understood here   330
as a list of the most common words or lemmas in a corpus; a keyword list as a list   331
of words that appear in a corpus more often than we would expect by chance and   332
that are extracted by statistical tests that compare their frequency against expected   333
frequencies derived from larger reference corpora (as, for example, the words and   334
phrases in Table 10.1). While the output of keyword lists is useful only for reference   335
and passive language acquisition, tutors can create exercises around the output in   336
order to promote active language acquisition (see Sect. 10.4).   337

Single-word terms from specialised corpora are detected by Log-likelihood   338
scores for their frequencies against a reference corpus (Rayson and Garside 2000).   339
An adaptation of the commonly-used Bootcat algorithm (Baroni and Bernardini   340
2004) is used for the extraction of multi-word terms. For example, we can start with   341
the frequencies of Russian words in the overall Internet corpus (Sharoff 2006) and   342
the frequencies from the business corpus to get the list of keywords. Then the list   343
can be extended by finding commonly used sequences of several words that contain   344
at least one of the words in the keyword list. The importance of multiword units can   345
be highlighted by non-compositional expressions, like *ценные бумаги* (securities)   346
which literally means "valuable papers". Users will be eventually be able to specify   347
the length of the phrases generated in the lists and select to view keyword lists of   348
specific parts of speech such as verbs, adjectives and nouns.   349

10.3.1.2 Automatic Extraction of Collocations

Tools for indentifying and displaying collocations in corpora are now well estab-
lished in many interfaces. There is an unresolved issue with regard to the most
appropriate score by which to rank the collocates (Evert and Kren 2001), but the
Log-likelihood score (Dunning 1993) is generally considered as a reasonable
choice, as it takes into account the ratio of frequencies as well as the actual number
of examples, Our tools can rank collocations either by their joint frequency or by
three statistical scores: Log likelihood, Mutual Information and T-Score. All three
statistical methods are used to determine the statistical significance of two
words occurring together; the default sorting order in the collocation tables is by log
likelihood.

Language learners often produce odd collocations, usually because of interfer-
ence from their native language (L1), and collocational information in most diction-
aries is scant – obviously because space is limited (even in larger dictionaries). The
automatic extraction of collocations is therefore another corpus-based function that
can be used to good effect in learning and teaching and it exceeds the capabilities of
existing printed resources. In keeping with the business theme of this paper, let us
look at two examples from Russian: adjective + *рынок* "market" and *произвести*
"to make, produce" + noun. Our tools allow users both to restrict the grammatical
tag of the collocates and to select their position in relation to the search word; there-
fore, we can tell the corpus to show adjectives on the left of *рынок* (see Fig. 10.3)
and nouns on the right of *произвести* (see Fig. 10.4). We used the Russian Business
Corpus available via our interface for both queries. To get a better idea of how these
collocations are used in context students can then click either on the collocations in
the "Pair" column or on the number beside them in the "Count" column of the table
and view a list of concordances.[5] A more detailed account of how we use the
collocation search function on the business Russian module is given in Sect. 10.4.

10.3.1.3 Compound and Affix Searching

As the aims of IntelliText were to create a user-friendly and simple search interface,
we have implemented a search type specifically intended for affixes that allows
users to either enter an affix and see in which words that affix occurs or enter a
lemma to generate affixed forms of that lemma (see Fig. 10.5). Our Affix Search
function is a particularly valuable resource for vocabulary building in many languages,
particularly those for which affixation is a productive source of word formation,
such as for the Slavonic languages in the case of verbal prefixation. The lists in
Fig. 10.6 show the outputs of both type of affix search.

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[5] Users generate ten concordances by clicking on the collocation and a list of all occurrences of the
collocation by clicking on the number.

Pair	Count	F1	F2	LL	MI	T
фондовый рынок	302	3543	5310	697.5	8	17.31
российский рынок	185	17829	5310	230.38	4.96	13.16
вторичный рынок	94	838	5310	229.7	8.39	9.67
мировой рынок	125	5542	5310	203.17	6.08	11.01
валютный рынок	110	4543	5310	182.61	6.18	10.34
внутренний рынок	111	4954	5310	179.98	6.07	10.38
внебиржевой рынок	47	266	5310	126.24	9.05	6.84
первичный рынок	58	1506	5310	109.67	6.85	7.55
финансовый рынок	85	14627	5310	81.79	4.12	8.69
страховой рынок	58	7026	5310	65.47	4.63	7.31
организованный рынок	27	356	5310	60.37	7.83	5.17
международный рынок	56	9956	5310	52.95	4.08	7.04
внешний рынок	39	3890	5310	47.66	4.91	6.04
межбанковский рынок	22	376	5310	46.24	7.45	4.66
междилерский рынок	12	19	5310	41.79	10.89	3.46

Fig. 10.3 Top ten adjective collocates to the left of *рынок* in the Russian Business Corpus

Pair	Count	F1	F2	LL	MI	T
произвести впечатление	332	6147	10171	908.81	9.28	18.19
произвести фурор	39	6147	115	155.34	12.65	6.24
произвести обыск	53	6147	1588	145.07	9.31	7.27
произвести эффект	66	6147	5943	144.1	7.72	8.09
произвести продукция	71	6147	11862	133.14	6.83	8.35
произвести посадка	30	6147	2839	64.71	7.65	5.45
произвести замена	30	6147	3200	62.92	7.48	5.45
произвести расчет	38	6147	9881	62.88	6.19	6.08
произвести сенсация	20	6147	938	50.18	8.66	4.46
произвести выстрел	23	6147	3694	43.54	6.89	4.76
произвести платеж	19	6147	2764	36.9	7.03	4.33
произвести расход	22	6147	8184	32.51	5.67	4.6
произвести ремонт	20	6147	5750	32.09	6.05	4.4
произвести пуск	14	6147	1012	32.08	8.04	3.73
произвести оплата	20	6147	5958	31.74	5.99	4.4

Fig. 10.4 Top ten noun collocates (Collocates are displayed in their lemma form) to the right of *произвести* in the Russian Business Corpus

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Fig. 10.5 The Affix Search page
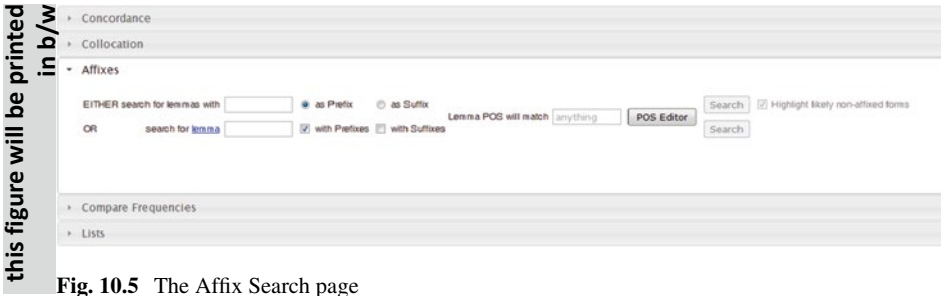
Lemma	Count ▼	Forms	Lemma	Count ▼	Forms
передать	10248	65	считать	41768	78
перестать	9581	47	прочитать	6348	59
перейти	7949	37	предпочитать	4169	53
перевести	5892	57	рассчитать	3020	48
переходить	5856	63	почитать	2365	65
передавать	5424	60	посчитать	1666	40
переживать	4589	63	подсчитать	875	40
пережить	4379	63	пересчитать	609	34
перенести	3234	51	зачитать	497	37
переводить	2944	63	перечитать	494	27
переставать	2612	27	вычитать	478	46
перебить	2580	43	сосчитать	461	29
переехать	2351	38	просчитать	425	37
переносить	1999	51	причитать	352	22
перечислить	1873	43	дочитать	334	26

Fig. 10.6 Sample outputs of an Affix Search: verbs beginning with *пере–* (on *left*) and prefixed forms of *читать* (on *right*)

386   Unfortunately, the searching mechanism cannot distinguish between genuine
387 affixed forms and non-affixed forms containing the same combinations of letters.
388 For example, a search for the prefix *over* looks for all words beginning with *over*
389 and so finds words such as *overt* and *overly* as well as genuine affixed forms such as
390 *overdone* and *overlay*. Similarly, a search for affixed forms of the verb *do* generates
391 words like *Nintendo* and *torpedo*. Users can try to improve the accuracy of the out-
392 put by selecting the "Highlight likely non-affixed forms" option, which highlights
393 in red forms that are not lemmas when the affix is removed. For example, *Nintendo*
394 and *torpedo* can be filtered out, since the forms *Ninten* and *torpe* are not lemmas.

However, this function is unreliable for many languages and retagging is needed to   395
knock out non-affixed forms from affix searches.[6]   396

Though called an Affix Search, this function can also be used to display lists of   397
compound forms such as ***работодатель*** "employer", ***работо***дательница "female   398
employer", ***работо***способность "work capacity"; *клиенто**ориентированность***   399
"client-centeredness",   *ренто**ориентированность***   "rent-centeredness",   400
*бизнес**ориентированность*** "business-centeredness", *англо**ориентированность***   401
"English-centeredness".   402

10.3.1.4   Using DIY Corpora for LSP Teaching   403

Besides using existing corpora to generate frequency lists, lists of collocations,   404
affixes and compounds, users may also compile their own collections of texts which   405
are automatically lemmatised and grammatically tagged by our tools. DIY corpora   406
are useful in both language and translation for specific purposes, in cases when   407
tutors, students or translators need to work with specific types of language. In com-   408
bination with the Frequency List Generator, DIY corpora offer a quick and easy   409
means of extracting a core vocabulary list for any LSP domain. Users simply need   410
to upload a set of texts, either as plain text, Microsoft Word or comprised files and   411
they can then make full use of all the features built into our interface. With regard to   412
the business Russian module, students may collect advertisements, CVs and cover-   413
ing letters, letters of complaint, political leaflets, etc., and then extract keywords   414
from their corpus or look up specific words in concordance and collocation searches.   415
This is a major benefit of corpus-based learning: while the lexicon of such a breadth   416
of highly-specific domains cannot be represented in printed language-learning   417
resources, which often take years to produce and generally cater for wider groups of   418
users, corpus-derived frequency lists can be created within hours and, more impor-   419
tantly, can cater for the individual. Corpora also give students greater autonomy and   420
allow them to extract their own frequency lists from and perform other searches on   421
corpora that they have compiled – an activity that can be both fun and fulfilling.   422

10.3.2   Register Recognition and Differentiation: 423
"Tagging for Teaching"   424

Many modern corpora are enriched with grammatical and domain information that   425
allows users to refine their searches and look for specific word forms, select texts   426
according to parameters like genre and topic and classify them in several other   427
ways. Besides morphological and semantic tagging, now customary in many   428

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[6] In the case of Russian, words like *президент* "president" and *предприятие* "enterprise" are correctly highlighted as non-affixed forms, as *зидент* and *дприятие* are not lemmas. On the other hand, words like *сон* "sleep; dream" and *сад* "garden" are not highlighted as non-affixed forms, as *он* "he" and *ад* "hell" are lemmas.

modern corpus interfaces, several other types of tagging can be used to enhance language learning. In this section, we look at three types of annotation that are relevant to LSP-teaching: (1) genre classification, (2) difficulty ranking and (3) the classification of texts according to the grammatical forms that they contain.

10.3.2.1 Genre Classification

Genre classification, a system by which genre categories can be automatically assigned to texts in non-annotated corpora, is a major advance in corpus development and allows us to show stylistic variation across texts. On the basis of previous research in which parameters for automatic genre detection and classification of texts from the Web (Sharoff 2010; Sharoff et al. 2010), we have been able to classify texts into such general genre categories as news items ('reporting'), legal texts ('regulations'), FAQs, advice ('instruction'), promotional materials ('advertising'), listings ('information') and everything else ('discussion').

Modern text classification (which covers genre and topic classification) is based on (1) detecting features which represent each individual document and (2) applying Machine Learning algorithms using a collection of documents with known labels. We used the Weka toolkit for the latter task (Witten and Frank 2005). Given a topically diverse document collection, the genre of documents can be successfully encoded by character n-grams, i.e., sequences of n characters (Mason et al. 2010; Sharoff et al. 2010). For example, the genre of news reports in English can be described by such n-grams as: rday week sday annou, which generalise over references to dates *(yesterday, Tuesday, Wednesday, Saturday),* while the genre of research articles can be described by such n-grams as s by; ly l; eris; naly, which generalise over some of the features of the formal language (including the greater use of adverbs and the passive voice). Such features are not absolute; Machine Learning algorithms (such as Naïve Bayes or Support Vector Machines) learn the strength of association between individual features and the labels, reaching the accuracy of 70–80 % on a topically diverse corpus.

In a similar fashion, for business Russian, we have been able to apply formality tags so that business clichés can be extracted to help students differentiate between formal and neutral language use as well as to help them achieve a better understanding of register and to allow them to compile their own lists of generic phrases used in official writing. Such stylistic tagging has a much wider application and can be used to display other features such as non-standard or regional use.

10.3.2.2 Difficulty Ranking

As we mentioned earlier (see Sect. 10.2), many language tutors have highlighted that the use of corpora in their language classes is limited in that students find it hard to understand the content of the concordance lines. This is not surprising: most corpora are made up of authentic texts and were not designed with the language

Fig. 10.7 Difficulty ranking in the IntelliText interface

learner and difficulty levels in mind. Most corpora were created for linguistic 468
purposes, and while it is possible to develop tools to exploit these corpora for specific 469
audiences, it is not possible to change their contents, and it is obviously time- 470
consuming to create new pedagogically oriented corpora made up of graded texts 471
and stratified according to content and other phenomena relevant to language learning. 472
As a consequence, in the case of many languages, only advanced language learners 473
have full access to corpus-based language learning, and even then tutors often need 474
to sift through many examples to find just one or two appropriate ones. 475

Some recent advances have been made in this respect. Sharoff et al. (2008) estab- 476
lished parameters for assessing the difficulty of texts and individual sentences in 477
Russian (and other languages) and mapped the result to the CEFR levels.[7] Methods 478
have also been developed for automatically ranking concordance lines according to 479
their difficulty by measuring lexical and syntactic complexity and sentence similar- 480
ity (Segler 2007; Kilgarriff et al. 2008; Kotani et al. 2008). As additional options for 481
sorting the concordance lines we have integrated a relatively straightforward lexical 482
match using the frequency-based CEFR-annotated lists (Kilgarriff 2010). This 483
means that the difficulty level of the concordance lines displayed can be matched to 484
the experience level of the students. Our user interface provides simple intuitive 485
components, such as sliders, to ensure that setting the desired level of difficulty is easy. 486
Even though, like other automatic processes, difficulty tagging is not completely 487
accurate it still makes the tutors' task of selecting appropriate examples from the 488
concordance lines much easier. Like all the processing features in our system 489
difficulty tagging has been implemented in a plug-in fashion so that it can easily be 490
[AU5] replaced as better methods are developed (Fig. 10.7). 491

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[7] http://www.coe.int/t/dg4/linguistic/cadre_en.asp

492 **10.3.2.3 Text Mining for Specific Grammatical Forms**

493 Corpus-held texts may also be categorised according to grammatical forms and
494 users may select to view texts that contain specific grammatical features. Form-
495 based searching is perhaps the most useful of our sorting options in that, although
496 tutors can easily select texts on a specific topic or of an appropriate level of diffi-
497 culty, once they are familiar with appropriate sources from where to take them, it is
498 a very difficult and time-consuming task to find texts that contain specific gram-
499 matical forms. Our tools make this task considerably easier and afford tutors access
500 to texts that they can give students as supplementary reading materials to accom-
501 pany in-class grammar drills. In the case of business Russian or official written
502 discourse, students may extract texts that contain grammatical constructions that
503 occur frequently such as gerunds or participles. Such searches can be done with the
504 underlying CWB system but would be time-consuming and users would need to
505 have in-depth knowledge of the search syntax as well as some computational
506 expertise. We provide a function in the interface that hides this complexity in a
507 manner similar to the way in which we made affix searching more accessible.

508 **10.4 Corpus-Based Exercises**

509 So far in this chapter we have dealt only with corpus-based language learning and
510 teaching from a technological perspective, describing how the tools and functions
511 that we implemented on IntelliText can be used in LSP teaching. However, for these
512 tools to be used effectively, pedagogically relevant and needs-driven materials and
513 exercises need to be written to accompany the technology and a suitable method-
514 ology needs to developed for introducing corpora to existing teaching syllabi.
515 Unfortunately, the pedagogical aspect of corpus-based learning and teaching has
516 not been researched in equal measure to the technological side of the approach, and
517 thus material design lags behind advances in the technology, and this is perhaps a
518 reason that DDL has not reached the mainstream since the innovative work of
519 Tim Johns in the 1980s and 1990s (1991a, b, 1993).
520 We have been developing corpus-based materials on two small projects:
521 ReadingCorp, mentioned above (see Sect. 10.3.2.1), and WritingCorp – Corpus-
522 based exercises for essay and précis writing in Russian – funded by the Teaching
523 Enhancement and Student Success (TESS) fund at the University of Leeds. On
524 ReadingCorp we are using a vocabulary-oriented approach and designing materials
525 on the basis of frequency lists taken from texts that are directly relevant to the
526 research topics of PhD students at the universities of Leeds and Sheffield. Our aim
527 is to use these materials to equip students with skills for comprehending essential
528 primary materials written in Russian. On WritingCorp we are designing corpus-
529 based exercises on themed topics that students cover at Level 2 (crime, health,
530 culture, society, etc.) to allow them to consolidate and expand on material covered
531 in class and improve their written Russian by engaging with topic-related texts.

Tutors can make use of different types of corpus-based exercise. We either create 532 exercises around the results of corpus searches and embed them in a broader peda- 533 gogical context or, to encourage learner autonomy, we design exercises that require 534 students to actively work with corpora and perform their own searches, either in 535 language lab sessions or as homework assignments. The former type of exercise has 536 been termed the "hands-off" or "soft" approach to corpus-based language learning 537 and the latter the "hands-on" or "hard" approach by Boulton (2008) and Gabrielatos 538 (2005), respectively. By employing the hands-on or hard approach we not only look 539 to enhance students' language competence but we also teach the students how to use 540 corpora in learning a foreign language – a useful transferable skill that students can 541 apply when learning other languages and an exercise that helps us in our endeavour 542 to foster a culture of corpus use. The hands-on approach is particularly useful from 543 a motivational perspective in that it allows students to work independently outside 544 the classroom and gives them an opportunity to explore language-related issues that 545 are of particular interest to them. Most in-class exercises are centred round the 546 hands-off or soft approach and can be created on the fly for a specific lesson. We 547 also provide hands-off exercises on our VLE system, either as Word documents or 548 as interactive exercises created in Hot Potatoes. In sum, using a corpus-based 549 approach, we aim not only to improve students' language competence but we also train 550 them in using corpora to address language variation and other linguistic issues – a 551 valuable skill that they can apply in other language modules and for languages other 552 than Russian. 553

We introduce corpora and corpus-based exercises to existing modes of delivery. 554 We believe that corpora should be used to support, not replace, existing teaching 555 practices and we strive towards a blended learning approach, which is highly desir- 556 able in the modern-day language learning classroom. We use several types of exer- 557 cise on the business Russian module, including: (1) a four-step approach to 558 vocabulary building; (2) compound searching; (3) using collocations to find differ- 559 ences between near synonyms and problematic pairs of words; and (4) indentifying 560 the more frequent of two or more expressions with similar usage. 561

In the first of these exercises, we give students a corpus of texts and ask them to 562 perform several tasks. First, they generate a keyword list. Second, they perform a 563 concordance search on the keywords to highlight their use in a broader context. 564 Third, they perform a collocation search on the keywords to extract common 565 collocations. Finally, they enter the collocations into a concordance search. Working 566 with authentic data, they inevitably find other interesting cases of language use in 567 carrying out these exercises. 568

For compound searching we identify potentially interesting compound forms, 569 either the initial or end part of a compound form, and ask students to find words that 570 contain these forms and then build on their initial search in various ways. Sample 571 compound forms are given in Table 10.2. 572

The corpus generates business-related words such as *торгово-промышленный* 573 "commercial and industrial", *налогооблагаемый* "taxable" and *агрофирма* "(an) 574 agro-industrial firm". These words are of little use to students out of context, with 575 respect to active vocabulary acquisition; therefore, we use the hands-on approach 576

Table 10.2 Sample "parts" of business-related compound forms

Search for as "prefix"	Search for as "suffix"	
работо		t2.5
торгово		t2.6
валютно		t2.7
налого		t2.8
финансово		t2.9
	торговля	t2.10
	фирма	t2.11
	общество	t2.12
	производство	t2.13

t2.4

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Fig. 10.8 Concordances generated from the collocation *налогооблагаемый доход*

577 and instruct them to perform concordance and collocation searches on some of the
578 compound forms and submit their annotated sample sentences to us. A collocation
579 search reveals that *торгово-промышленный* is used almost exclusively in
580 the phrase *торгово-промышленная палата* "Chamber of Commerce and
581 Industry" and that common collocations that contain *налогооблагаемый* are
582 *налогооблагаемый доход* and *налогооблагаемая прибыль*, both meaning "taxable
583 income". Students can then perform a concordance search on these collocations,
584 by clicking on the collocation in the results table, to see them in a broader context.
585 This type of task is particularly suited to homework assignments (Fig. 10.8).

586 By performing a collocation search on *налогооблагаемый* and then clicking on
587 the concordances of *налогооблагаемый доход* students may also identify other
588 words or phrases that are commonly found in its immediate context: *вычитать*
589 *(из)* "to deduct (from)", *уменьшить* "to reduce", *предельные размеры* "thresh-
590 old", etc. Therefore, from the initial word-forming exercise students would be able
591 to commit words like *налогооблагаемый* to their passive vocabulary, while by
592 performing collocation and concordance searches they are more likely to be able to
593 apply them actively by using corpora to see how a word like *налогооблагаемый* is
594 used both in specific collocations and in a broader context.

595 Corpora are particularly useful for understanding subtle differences in meaning
596 and making distinctions between near synonyms or pairs of words that non-Russians

Pair	Count	F1	F2	LL	MI	T	Pair	Count	F1	F2	LL	MI	T
свой ремесло	134	644414	2003	146	4.48	11.06	розничный торговля	1079	4062	17990	3904.63	11.63	32.84
заниматься ремесло	33	45789	2003	55.56	6.27	5.67	внешний торговля	1029	27249	17990	2654.69	8.81	32.01
художественный ремесло	22	12017	2003	47.18	7.61	4.67	международный торговля	612	35306	17990	1334.56	7.69	24.62
этот ремесло	74	944692	2003	46.63	3.07	7.58	оптовый торговля	396	2358	17990	1327.06	10.97	19.89
народный ремесло	20	18268	2003	37.78	6.87	4.43	в торговля	821	426615	17990	902.47	4.52	27.4
какому-нибудь ремесло	11	559	2003	36.66	11.04	3.32	свободный торговля	414	28512	17990	864.87	7.44	20.23
писательский ремесло	11	1112	2003	32.86	10.05	3.31	биржевой торговля	218	2846	17990	639.08	9.83	14.75
столярный ремесло	8	217	2003	29.21	11.95	2.83	мировой торговля	246	29268	17990	446.22	6.65	15.53
и ремесло	141	5535765	2003	27.11	1.45	7.52	электронный торговля	189	16208	17990	373.51	7.12	13.65
традиционный ремесло	14	13226	2003	26.2	6.82	3.71	министерство торговля	170	14943	17990	333.83	7.08	12.94
актерский ремесло	9	1110	2003	25.98	9.76	3	беспошлинный торговля	69	225	17990	254.54	11.84	8.3
военный ремесло	18	41828	2003	25.71	5.53	4.15	сфера торговля	134	25538	17990	211.58	5.97	11.39
учиться ремесло	14	22040	2003	22.67	6.09	3.69	заниматься торговля	145	45789	17990	193.04	5.24	11.72
кузнечный ремесло	6	204	2003	21.21	11.62	2.45	организация торговля	156	69684	17990	181.47	4.74	12.02
развитие ремесло	18	75399	2003	20.56	4.68	4.08	биржевой торговля	57	585	17990	174.14	10.18	7.54

Fig. 10.9 Collocation-based comparison of the words *ремесло* and *торговля*

find hard to distinguish and for which conventional dictionaries and grammars offer little help. Some typical and more general examples are "crime" and "bed": *преступление* vs. *преступность* and *постель* vs. *кровать*. By viewing the collocates of these words students can achieve a better understanding of how they are used. They should be able to identify that *преступление* denotes a specific crime, whereas *преступность* is an abstract noun denoting crime in general. Likewise, by looking at the adjective collocates on the left of *постель* and *кровать* students should be able to identify that *постель* is a bed in both the physical and abstract sense (as well as bedding), while *кровать* is only a physical object or a bed frame. They can also use corpora to establish important distinctions between problematic pairs of phrases such as *в русском языке* vs. *на русском языке* "in (the) Russian (language)", *в автобусе* vs. *на автобусе* "in/on/by (the) bus) and *в самом деле* vs. *на самом деле* "in actual fact", which many learners of Russian fail to master. In a business context, words such as *business*, *trade* and *commerce* may cause students problems, as each has several translations in Russian. Let us look at *trade* to highlight this point (Fig. 10.9).

The results show that *ремесло* is a specific trade and *торговля* is an abstract term denoting the exchange of goods. Moreover, there are some interesting findings. Both words occur with *заниматься* "to do; be engaged in" and *военное* (*военный* "military") *ремесло* is potentially confusing, as it may be understood by some native speakers of English as meaning "arms trade". In the first case, *заниматься ремеслом* means "to ply a trade", while *заниматься торговлей* means "to be involved in trade; to work as/be a trader (of)". A concordance search of *военное ремесло* would show students that this term denotes the act of training to become a soldier and is therefore a specific trade, as we would expect; "arms trade" is *торговля оружием*, again with the expected Russian equivalent of trade (*торговля*). Therefore, by using a collocation search, if necessary in combination with viewing concordances, students can work out problematic distinctions between words and phrases that cause learners problems more effectively than by relying on (brief) descriptions offered in language manuals. Corpora also highlight anomalous cases in which actual language use does not correspond to the prescribed rules.

Fig. 10.10 Table of results for a frequency comparison of *международная фирма* (Query 1) and *международная компания* (Query 2)

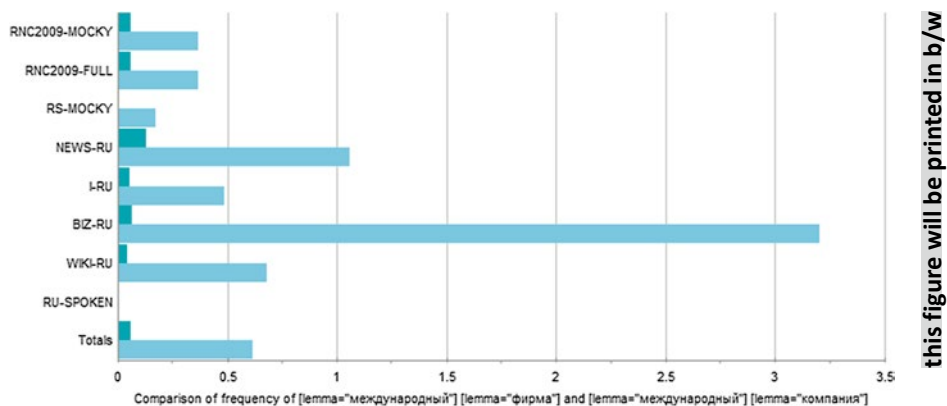| Corpus	Query 1		Query 2	
	Instances	IPM	Instances	IPM
RNC2009-MOCKY	7	0.060	43	0.368
RNC2009-FULL	7	0.060	43	0.369
RS-MOCKY	0	0.000	1	0.172
NEWS-RU	10	0.129	82	1.056
I-RU	11	0.055	96	0.484
BIZ-RU	1	0.063	51	3.205
WIKI-RU	8	0.045	122	0.682
RU-SPOKEN	0	0.000	0	0.000
Totals	44	0.062	438	0.616

Frequency comparisons are useful for identifying the more common of two or more words or phrases that are semantically synonymous, as in: preposition + snail/postal/paper + mail. It is often the case that one of two or more words or phrases that differ neither in meaning (nor in register) is used considerably more. Tutors can give their students sets of examples to compare, and a subsidiary aim of this task is to improve students' analytical skills and for them to make such queries themselves on other pairs of words that they encounter in their own reading.

Two business-related examples are *международная фирма* vs. *международная компания* "international firm, company" and деловая женщина vs. бизнесменка "business woman". In the first case, *фирма* and *компания* are contextually synonymous; in the second, *бизнесменка* is a neologism and considered a colloquial form. A frequency comparison search will show only differences in the frequency of the words or phrases that are compared, not subtle differences in their use. Therefore, to make sure that words are in fact synonyms students are advised to perform a concordance search on each of them. Figures 10.10 and 10.11 show the results for a search performed on *международная фирма* vs. *международная компания*. Students can see from these results that *международная компания* is the more common of the two by a considerable margin – a perhaps surprising observation for learners of Russian. Frequency comparisons may also be used to compare (across different corpora) the use of words or phrases that are semantically synonymous but differ stylistically. A good example is *выйти из дома* vs. *выйти из дому* "to leave the house". The former is neutral, while the latter is colloquial; therefore, students can look at their use in corpora of various genres to achieve a better understanding of when it is appropriate to use one or the other form.

10.5 Conclusions

We have shown in this chapter several ways in which corpora can facilitate and enhance learning and teaching and that a corpus-based approach to business Russian, as well as to LSP teaching more generally, has many benefits and helps to

Comparison of frequency of [lemma="международный"] [lemma="фирма"] and [lemma="международный"] [lemma="компания"]

Fig. 10.11 Chart of a frequency comparison search of *международная фирма* (Query 1) and *международная компания* (Query 2)

compensate for the lack of printed teaching materials. We have also shown that 656
corpora are well suited to training certain important LSP skills, such as vocabulary 657
acquisition and register recognition and differentiation. 658

Corpus-derived frequency lists provide the basis for LSP courses and they can be 659
created for most topics, provided that a large enough body of literature exists for 660
these topics; importantly, a corpus-based approach can meet the needs of the indi- 661
vidual language learner, such as a PhD student needing to acquire specialised read- 662
ing skills in a short time. The breadth of LSP subjects cannot be covered by 663
conventional printed course books, printed course books cannot cater for the needs 664
of the individual and nor can they represent events taking place at the present time. 665
Corpora can cater for all of these needs. Tutors, or even students, can use our tools 666
to generate frequency, collocation and concordance lists, on the basis of which 667
ad-hoc materials and exercises can be created. The materials (and the lists) can be 668
stored electronically, in online repositories, and made available to other users; 669
moreover, available in the format of a collaborative wiki, they can be updated and 670
augmented at any time by their creators or by others. Collaborative learning is par- 671
ticularly important within ICT (Information and Communication(s) Technology) 672
and the pooling and sharing of language resources has many benefits. First, collabo- 673
ration can enhance language learning and teaching and facilitate tutors' work. 674
Second, a collaborative approach can help provide support both for LSP or other 675
specialised modules and for less-commonly taught languages for which student 676
numbers may not warrant a taught programme but for which tuition can be 677
offered cross-institutionally through a collaborative distance e-learning programme. 678
A further advantage of corpora over printed language manuals is that they are 679
not limited by space. Students can view hundreds of collocations or concordances 680
as opposed to just one or two. A corpus-based approach to LSP teaching can also 681
be used to facilitate register recognition and differentiation. We were able to 682
utilise tools for automatic genre classification to tag business clichés and formal 683

684 expressions to help students extract set phrases and use them in their own sample
685 official letters. Other tags can be used in other LSP domains to help learners
686 differentiate between genres and registers more accurately.

687 That said, for corpora to become a standard feature in LSP teaching more
688 research is needed on both the technological and pedagogical strands of corpus-
689 based learning and teaching. Corpus-based tools require refinement for pedagogical
690 purposes and a more accurate and sophisticated annotation system needs to be
691 developed. Such tools are being developed, yet they are still in their infancy and are
692 in need of further refinement. With regard to pedagogy, relevant and needs-driven
693 materials need to be developed, as does an extensible methodology for the applica-
694 tion of corpora in learning and teaching. Without materials to support it the technol-
695 ogy is of little practical use to the majority of language learners. More collaboration
696 between computer scientists and researchers in other fields is needed to identify
697 further tools and functions that language learners require. However, it is fair to
698 say on the basis of existing evidence and expected technological advances
699 that corpus-based tools will become easier to use and more functional, tagging will
700 become more accurate and corpora will play an increasingly important role in
701 research and teaching in various academic disciplines, including LSP teaching.

702 In sum, we believe that a corpus-based approach can make an important contri-
703 bution to LSP teaching; corpora can facilitate the work of both tutors and their
704 students and they can be used to create materials for highly specialised subjects, on
705 current affairs and to meet the needs of the individual learner. However, specific
706 conditions need to be met for a corpus-based approach to reach the mainstream.
707 First, corpora should be used to support, not replace, existing teaching practices and
708 should be incorporated into a blended learning package optimal for enhancing
709 learners' language competence. Second, corpus-based exercises need to be created
710 to accompany the technology. Third, more work is needed to promote, through
711 workshops, seminars and practical demonstrations, corpus-based language learning
712 in order to present its benefits and methods of application to tutors and students
713 and to foster a culture of corpus use among the language learning and teaching
714 community.

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