The Acquisition of Basic Collocations by Japanese Learners of English

A Dissertation
Presented to the Graduate School of
Waseda University

by
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In Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

2005

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October 31, 2005

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Acknowledgements

This doctoral dissertation would not have been completed without considerable help and encouragement of many special persons. First of all, I would like to express my greatest gratitude to my supervisor, Professor YANO Yasukata. His invaluable advice and thoughtful encouragement throughout the years made it possible to pursue critical reading of previous pieces of research and the originality of my dissertation. It has been my honor to complete it under his continuous instruction.

I would also like to express my deep appreciation to my dissertation committee members: Emeritus Professor SHINODA Yoshiaki, Professor Paul Snowden, Professor NAKANO Michiko and Professor MURATA Kumiko. Their constructive and critical comment on the draft of this dissertation helped me to polish it to the level of doctoral dissertation.

I would like to extend my great appreciation to Professor KAWAGUCHI Yoshikazu and Associate Professor NAMAI Kenichi, who helped to collect data for my research. I also wish to thank Professor Jeffrey Miller for reading through my manuscript patiently within a limited time. My special thanks are due to the late Emeritus Professor TANABE Yoji who proofread the abstract of this dissertation and gave me appropriate advice.

I am particularly grateful to my parents for their deep understanding and warm-hearted encouragement for years. They have always supported my pursuit of academic interests.

Finally, I owe a sincere gratitude to my husband, SHIMOYAMA Yukinari. He always gave me inspiring comments on my research and encouraged me to continue writing my manuscript wholeheartedly. Without his support and patience, I could not have completed this dissertation.

Chapter 1. Introduction

1.1. General background

1.1.1. Vocabulary acquisition research since the 1980s

Vocabulary acquisition has become a major focus of interest in EFL since the 1980s, for two main reasons. One reason is connected with the trend for pragmatics, which is the study of the use of language in communication, to become a major field of study in linguistics, and in ESL and EFL. The study of language is often divided into that of language structure and language use. To study language structure is to examine the function of a linguistic item as an element of the linguistic system, while to study language use is to analyze how it functions in communication and how effectively and appropriately people use a language in a certain context. Since the 1970s the latter has been researched in linguistics and language teaching, because the main function of language has been widely considered as a means of communication. As the importance of function of communication, that is, pragmatic competence, combined with psycholinguistics, was asserted by many linguists, it has come to be viewed as an essential part of learners' competence. As a result, the approach to communicative competence and the mental process of communication has been emphasized, and vocabulary, which is closely connected with pragmatic competence, has been focused on. This claim has been made by many researchers (Krashen, 1989; Carter, 1987; Widdowson, 1993) and proposals and plans for a lexical syllabus based on a communicative approach have also been made by Willis (1990) and Lewis (1993).

The other reason for highlighting vocabulary acquisition is connected with the spread of corpora, which are computerized and organized as large scale text for a certain purpose. As a result, many words and phrases have been investigated easily and objectively via computers. One of the most famous computerized databases is the British National Corpus (BNC), which is a sample of some 100 million words of present-day spoken and written British English. It is made up of 4,124 different text files, each containing either a complete text or a number of short related texts, or a substantial sample of a long text, and it gives researchers and material writers access to powerful tools for vocabulary analysis. Good examples based on the BNC are English dictionaries such as *Oxford Advanced Learners' Dictionary (OALD), Longman Dictionary of Contemporary English (LDOCE)* and *Harrap's Essential English Dictionary (Harrap).* Such scientifically accurate dictionaries reflecting the frequency of real examples by native speakers of English are easily obtained with the spread of computer systems and the use of more easily available corpus.

As mentioned here, vocabulary research has been a mainstream topic since the 1980s, supported by a focus on pragmatic competence and the spread of corpora.

1.1.2. Importance of collocation studies and related problems

In the study of vocabulary treated as a mainstream topic from the standpoint of language use rather than language structure, many linguists have focused not on each word in a sentence, but on the combination of words in terms of productivity. Therefore, collocation has become one

particular area of vocabulary research which has attracted their attention theoretically and practically. Benson, Benson and Ilson (1997) highlight the importance of this as follows:

> Learners of English as a foreign or second language, like learners of any language, have traditionally devoted themselves to mastering words—their pronunciation, forms and meanings. However, if they wish to acquire active mastery of English, that is, if they wish to be able to express themselves fluently and accurately in speech and writing, they must learn to cope with the combination of words into phrases, sentences and texts. (p. ix)

Not only Benson et al. but also other researchers (Bahns & Eldaw, 1993; Bahns, 1993; Channell, 1981; Lewis, 1993; Takizawa, 1999; Willis, 1990) have discussed the importance of collocation, and they agree that learners must master how words combine or collocate with each other in order to develop their vocabulary proficiency.

In spite of the agreement on this view of collocation, Mackin (1978) is rather dubious about the possibility of actually teaching collocations. He argues that ESL or EFL learners can not learn all the many thousands of collocations. The difficulty of collocational acquisition has been also claimed by Rudzaka, Channell, Putseys and Ostyn (1981) and Allerton (1984). This view point arises from the ESL or EFL learners' lack of collocational competence (Bahns, 1993) or intuition, which is defined as one basis for native speakers' establishing or confirming rules of the grammar and the usage of the language (Crystal, 1992). In order to specify the difficulty of collocational acquisition, many linguists have conducted challenging empirical research on the collocational mechanism for both native speakers of English and non-native speakers of English (Bahns, 1993; Bahns &

Eldaw, 1993; Biskup, 1992; Caroli, 1998; Elyildirm, 1997; Ghadessy, 1989; Gitsaki, 1999; Granger, 1998; Greenbaum, 1970; Howarth, 1993, 1998a, 1998b)

Moreover, up until now, studies on collocation have been insufficient in defining the concept of collocation in a more rigorous way (Cowan, 1989). The well-known statement "the tendency of a lexical item to co-occur with one or more other words" is made by Backlund (1973, 1976), Cruse (1986), Crystal (1985), Halliday (1966), McIntosh and Strevens (1964), Ridout and Waldo-Clarke (1970), and Seaton (1982), and it has been followed since the definition of collocations was first introduced by Firth (1957) to more recent and up-to-date research projects by many linguists. However, none of them clearly mention the boundary between three phraseological concepts: free combination, idiom and collocation because they can be presented along a continuum (see section 2.2.1). The unclear concept of collocation results in various names for it (see section 2.2.2). Therefore, further collocation research and discussion are certainly required in order to clarify the concept of collocation and formulate a comprehensive theory of collocations.

1.1.3. Change of vocabulary treatment for Japanese learners of English in the government guidelines for foreign language teaching

While the importance of vocabulary acquisition and collocation acquisition are being reconsidered of late, they have been disregarded in Japan. The change of vocabulary treatment for Japanese learners of English is clearly reflected in the government guidelines for foreign language teaching published by the Ministry of Education, Culture, Sports, Science

and Technology (MEXT).

Table 1. Decreases of the number of words in the government guidelines for foreign language teaching published by MEXT

	lower secondary school	upper secondary school	
implementation	No. of words	No. of words	total
1960 (1962)	1100～1300	3600	4700～4900
1973 (1972)	950～1100	2400～3600	3350～4700
1982 (1981)	900～1050	1400～1900	2300～2950
1992 (1993)	～1000	maximum 900	1900
2003 (2002)	～900	maximum 900	1800

(　) = the year when the government guidelines for foreign language teaching for lower secondary school students were implemented.

Table 1 shows the change of word-number taught to students at lower and upper secondary schools. It was found that the number of words included in each textbook has steadily decreased to date. In 2003 textbooks, up to 900 words should be taught at lower secondary schools and up to 1800 words at upper secondary schools. In fact, the way to count words is word form, that is, word stem and the inflection should be counted separately. For example, *sleep* and *slept* are two words according to the counting method adopted by MEXT. This means that with 900 words taught at lower secondary school learners face difficulty expressing themselves. Moreover, these 900 words contain function words such as prepositions and pronouns, so that expressions with those words are even more limited.

The number of words required to communicate properly is different according to different researchers. Laufer (1997, 1992) claims that at least 3000 words are needed to read academic texts, which is supported by Tono (2003) as the vocabulary size Japanese learners of English should aim at, although he mentions that 2000 words are requisite to read 80% of an easy

text. According to Chujo & Takefuta (1994), 5000-7000 words are necessary to communicate without any trouble. Nation (2001) maintains that to reach 95% coverage of academic texts, about 4000 word families should be acquired, consisting of 2000 high-frequency general service words, about 570 general academic words and about 1000 technical words, proper nouns and low-frequency words. Compared with those arguments by some linguists, 1800 words learned by the 12th is insufficient in communication.

Thus, the number of words aimed at for Japanese learners of English seems to be quite limited, so that there is a great possibility that they face difficulty communicating with their acquired words.

1.1.4. Lack of pedagogical consensus on collocation in Japan

The description of collocation in the government guidelines for foreign language teaching shows an unclear concept of collocation.

> (3) Language elements
> B....Basic collocations should be chosen for instruction
> (From the description of collocation for upper secondary school students in the government guidelines for foreign language teaching in Japan (2003))

This is a rather vague description, which does not explain which collocations are basic and how many collocations should be selected. This means that those who compile textbooks for Japanese learners of English and English teachers at secondary schools have no general concept and consensus on collocation, and have to adopt an arbitrary choice of collocations. Furthermore, the government guidelines for foreign language teaching in

1960 and 1973 recommended that high-frequency collocations be taught and presented with some examples to be acquired by secondary school students and mentioned *be able to* and *have to* as collocations. However, whether *be able to* and *have to* are collocations or not and whether these examples are really high-frequency words or not are questionable. In fact, collocations have been called by various names such as *jukugo, kanyoku, kogohyogen, rengo* and so on, and idioms, collocations, and phrasal verbs have been all covered by these expressions. This is because there has been little pedagogical research on collocation in Japan, compared with other collocation studies to date. This is a matter to be solved in Japan as soon as possible.

1.2. The main research questions and organization of the chapters

Judging from the present state of collocation study in Japan, it would be meaningful to conduct an empirical study on collocations of Japanese learners of English. Broad questions arise as follows:

1. What is *collocation*?
2. What are basic collocations needed to be acquired for Japanese learners of English?
3. How are the collocations to be acquired by Japanese learners of English?
4. What is effective teaching of collocations?

This paper consists of the following chapters. In Chapter 2, collocation is compared with free combinations and idioms; the study of collocation to date

is reviewed in terms of five study fields; and the importance of collocation study is clarified in order to define collocation. In Chapter 3, the empirical research on collocation to date and the research on collocation in Japan to date are introduced. In Chapter 4, a definition of collocation in this research is given, based on previous theoretical and practical research on collocations in Chapters 2 and 3, and research questions are posed, following some pilot studies. In Chapters 5 and 6, in order to identify basic collocations for Japanese learners of English, corpus-based research is undertaken and the results are discussed. In Chapters 7 and 8, in order to clarify the mechanism of collocation acquisition by Japanese learners of English, empirical research is conducted and the results are discussed with the presentation of the findings. In Chapter 9, summary of all the previous chapters; pedagogical implication for the effective compilation of English textbooks; limitations of this study; and proposals for future research are mentioned as the conclusion.

Chapter 2.
Literature review (1): Definition of *collocation*

2.1. Introduction

This chapter briefly reviews the early studies of collocation, which are of particular relevance to the present study. The first section examines some linguists' perspectives on the distinction between three main phraseological combinations—idioms, collocations, and free combinations—and the criteria to differentiate them. Also, inconsistent names for two main criteria for collocation are clarified. The second section gives an explanation of the definition and features of collocation in five different research groups: descriptive studies, semantic studies, computational studies, lexicographic studies, and pedagogical studies. The final section concisely describes the importance of collocation.

2.2. Terminology of three major groups of phraseology

According to Gitsaki (1999), many linguists state that semantic transparency appears to be the only criterion that could make a difference between idioms and collocations. However, considering three main phraseological combinations—idioms, collocations, and free combinations—not only semantic transparency but also collocational restriction is also regarded as an important criterion by many linguists (Aisenstadt, 1979; Benson, Benson & Ilson, 1986; Carter, 1987; Cowan, 1989; Cowie & Howarth, 1996; Cruse, 1986; Fernando, 1996; Gramley & Pätzold, 1992; Korosadowicz-Struzynska, 1980). Furthermore, some of the linguists who agree to these two criteria to distinguish between idioms, collocations, and

free combinations add one or two more criteria to differentiate these three combinations more clearly, while they admit that those criteria tend to be expressed along a continuum and the boundary between the three categories cannot be clearly set.

2.2.1. Collocation, idiom and free combination

Aisenstadt (1979, 1981) first regards collocability restrictions as a distinctive and important part of the wide field of collocability, and defines them as certain commutability restrictions, that is, their ability to combine with other words. In terms of the collocability restrictions, he categorizes all English word combinations into idioms and non-idiomatic phrases, and the latter, which are the huge majority functioning in speech, can further be subdivided into free phrases and restricted collocations. Figure 1 expresses constituents of English word-combinations:

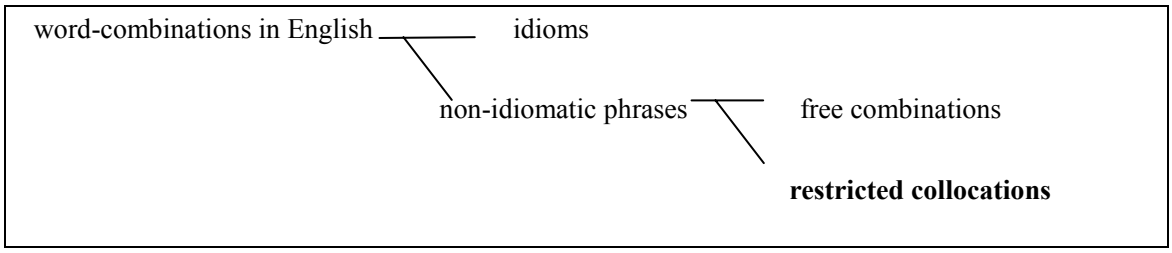

Figure 1. Categorization of English word combinations by Aisenstadt (1979, p. 71, 1981, pp. 53-54)

Restricted collocations are defined as "a type of word combination consisting of two or more words, unidiomatic in meaning, following certain structural patterns, restricted in commutability not only by semantics, but also by usage, belonging to the sphere of collocations" (1981, p. 54).

Owing to those characteristics, they can be separated from idioms and free combinations. Restricted collocations and idioms are different in that

their constituents are either transparent or not. Aisenstadt describes it with an example of *face the facts*, *face the truth*, *face the problem*, *face the circumstances*, and *face the music* including the verb *face* (1979, p. 71). *Face the music* is an idiom, while the others are restricted collocations in terms of semantic units, that is, the meaning of each combination is composed from the sum of the meanings of its constituents. *Face the music* means expose oneself to a serious position where one will be criticized for something one has done and the general meaning of each constituent does not reflect the whole meaning at all. On the other hand, the meaning of each constituent of other combinations is clear. Thus, idioms have unique meanings, which are never reflected from the meaning of each constituent of the combinations and they do not have other patterns and other variable constituents, while restricted collocations have variability and usually occur in patterns with some interchangeable constituents.

On the other hand, Aisenstadt maintains that restricted collocations differ from free combinations by their commutability restrictions conditioned by usage. He cites an example of *carry* to differentiate the two combinations. When *carry* has the main meaning of *supporting the weight of something* or *taking something from one place to another*, it can collocate freely with any noun denoting what is supported or moved like in *carry a book/bag/chair,* which are free combinations. However, when *carry* has another meaning of *convincing something* or *winning the argument* as in *carry conviction* and *carry weight*, it is a constituent of restricted collocations, because the verb is connected with only a few possible variations of nouns.

As mentioned above, Aisenstadt (1979) claims that restricted collocations are different from idioms in commutability restrictions by grammatical and

semantic valence and from free combinations in commutability restrictions by usage.

Nattinger and DeCarrico (1992) and Carter (1987) set up three criteria to distinguish between idioms, collocations and free combinations. Nattinger and DeCarrico (1992, pp. 176-178) cites the definition of collocations by Wood (1981) as the best model for the definition of the word combinations. He considers them as a continuum with completely invariant clusters at one end, freely combining morphemes at the other end, all degrees of combinational flexibility in between. They admit semantic criterion of compositionality, which means the meaning of the combinations is predictable from each constituent. They propose one more parameter, productivity, which looks at whether the form of a combination is structurally unique.

Using these three parameters, flexibility, compositionality, and productivity, they attempt to define the continuum more precisely with idioms , collocations, colligations and free combinations, the third of which they originate. The continuum is shown as follows:

idioms collocations colligations free combinations

←----------→

Figure 2. Continuum of word combinations by Nattinger and DeCarrico (1992, p. 178)

Idioms are fully non-compositional and non-productive collocations, i.e. completely unpredictable in their meaning and form like in *by and large* and *hell for leather*. They are completely frozen expressions and there are relatively few, since most other phrases admit some degree of

compositionality or productivity. Free combinations, which are placed at the other end of the continuum, are fully compositional and productive collocations, i.e. completely predictable from each of their constituents like in *see the river*. In between these two extremes are various degrees where collocations and colligations are placed. Collocations are roughly compositional but are restricted to certain specified collocations. *Kick the bucket* is not completely frozen, because *kick* in the sense of *die* can be connected with *off* and *out* into *kick off* and *kick out*. However, it is less compositional than free combinations such as *drink milk/tea/coffee*. When substitution is limited by syntactic category and semantic feature, the combinations are called *colligations* like in *off with his head*.

Carter (1987) holds the same opinion as Nattinger and DeCarrico (1992) in regarding the same three criteria as important in determining how fixed particular lexical patterns are and they are a matter of degree, from unrestricted collocations to restricted collocations, from flexible to go-it-alone, from transparent to opaque. But instead of *productivity* he names the third criterion which determines whether the form of a combination is structurally unique *syntactic structure*.

Korosadowicz-Struzynska (1980) offers three criteria to distinguish between collocations and idioms, which are slightly different from those of Nattinger and DeCarrico (1992) and Carter (1987). He defines collocations as "situationally appropriate forms of language which are to a great extent institutionalized" and calls them *conventional syntagmes* (1980, p. 111). In order to distinguish between collocations and idioms, he proposes three criteria: semantic opacity, the impossibility of passivization, and peculiarity to a language. According to the first criterion, semantic opacity, idioms are

phrases whose meaning cannot be inferred from the meaning of their constituents or phrases used as words, while collocations are kinds of set expressions the meaning of which can be inferred if learners know the meaning of their constituent lexical items and if they have some background knowledge in certain specific cases. The second criterion, the impossibility of passivization is called *fixity* by Fernando (1996), *commutability restriction* by Aisenstadt (1979), *productivity* by Nattinger and DeCarrico (1992) and *collocational restriction* by Carter (1987). Based on it, idioms cannot be altered, no other synonymous word can be substituted for any word in an idiomatic phrase, and the arrangement of the words can rarely be modified. With collocations, most of them do not lack syntactic flexibility. The third criterion, peculiarity to a language, is Korosadowicz-Struzynska's original which is not listed as one of the criteria to identify idioms and collocations by other linguists and is clarified citing Lado (1955) as follows:

> *Idioms* — expressions peculiar to a language — are identifiable as we compare two languages rather than within the language itself. An expression which may seem peculiar to native speakers may be quite natural to speakers of another language and would therefore not be an idiom to them. On the other hand, an expression which seems quite natural to native speakers may be strange to foreign speakers of a particular language background. If we should find, on comparing the expression with a variety of languages, that it is strange to all or nearly all of them, we would be justified in calling it an idiom in general, but even then the statement would be meaningless in those cases in which the other language had a parallel expression. (cited in Korosadowicz-Struzynska, 1980, p. 287)

According to Lado's suggestion, idioms are natural to native speakers but peculiar to foreign speakers of a particular language background, whereas collocations seem to be shared by speakers of any languages.

In order to express the complexity and variation of collocations and idioms, Cowie and Howarth (1996) take into account these four criteria: familiar (or institutionalized), stored (or memorized), limited and arbitrary variable (restricted), and semantically opaque as included in optional criterion. The levels of collocational complexity are shown in Figure 3 (Cowie & Howarth, 1996, p. 83, referred in Schmitt, 2000, p. 79)

LEAST COMPLEXITY AND VARIATION

1. IDIOM
bite the dust, shoot the breeze

2. INVARIABLE COLLOCATION
break a journey, from head to foot

3. COLLOCATION WITH LIMITED CHOICE AT ONE POINT
take/have/be given precedence [over noun phrase]
give/allow/permit access to [noun phrase]
have/feel/experience a need [for noun phrase]

4. COLLOCATION WITH LIMITED CHOICE AT TWO POINTS
as dark/black as night/coal/ink
get/have/receive a lesson/tuition/instruction [in noun phrase]

MOST COMPLEXITY AND VARIATION

Figure 3. Levels of collocational complexity by Schmitt (2000, p. 79)

At the first level, idioms are multiword lexemes which never permit any variation and once one constituent of them is changed, they cease to exist as idioms. Thus, idioms are the least complex because they allow no variation. At the second level, the collocations are still fixed but the meaning is not idiosyncratic and rather more transparent because it is composed from the meanings of all of the components. Therefore, they are a bit more complex because the meaning has to be composed from several lexemes. At the third

level, the collocations have a slot that can be selected from a limited list of words, whose meaning is quite similar. This choice introduces both variation and complexity. At the fourth level, collocations have two slots and they are more variant and complex because two words at two points can be selected. Thus, the farther the level is from idioms, the more variation and more complexity the word combinations contain.

Cowan (1989) also takes into account four criteria: a degree of syntactic frozenness, resistance to lexical substitution, some degree of semantic opacity and one orthographic word, the fourth of which was originated by him. He maintains that the third criterion, semantic opacity, is especially inevitable to ultimately distinguish collocations and idioms. He also mentions that judging the degree of semantic opacity and metaphoric abstraction involves subjective judgments.

Although Fernando (1996, pp. 30-38) lists only two criteria, fixity and non-literalness in contrast to three criteria proposed by Nattinger and DeCarrico (1992), Carter (1987) and Korosadowicz-Struzynska (1980) and four criteria by Cowie and Howarth (1996) and Cowan (1989), he provides a systematic framework of idioms and habitual collocations. According to Fernando (1996), idiomaticity is inevitable in order to classify word combinations, which mainly consist of idioms and habitual collocations. Idiomaticity can be defined as "a scale which demonstrates the shading off of sub-classes of idioms into one another as well as the overlap between idioms and their lexical kin, collocations" (Fernando, 1996, p. 31) and fixity and non-literalness are two main factors to judge the degree of idiomaticity. As they are a matter of degree, idioms and habitual collocations can range from the completely fixed and semantically non-literal to unrestricted and literal.

Idioms and habitual collocations are characterized by fixity and literalness as shown in Figure 4.

Idioms

I	**pure idioms**
a	**invariant, non-literal** devil-may-care, backlash, chin wag, red herring, make off with, spick and span, smell a rat, the coast is clear, etc.
b	**restricted variance, non-literal** pitter-patter/pit-a-pat, take/have forty winks, seize/grasp the nettle, get/have/cold feet, etc.

II	**Semi-literal idioms**
a	**invariant** drop names, catch fire, kith and kin, foot the bill, fat chance you've got, etc.
b	**restricted variance** chequered career/history, good morning/day, blue/film/story/joke/gap/comedian, etc.

⇔

III	**Literal idioms**
a	**invariant** on foot, one day, in sum, in the meantime, on the contrary, arm in arm, very important person (VIP), potato crisps, tall, dark and handsome, waste not, want not, happy New Year, etc.
b	**restricted variance** opt in favour of/for, for example/instance, in order that/to, happy/merry Christmas, etc.

	Literal idioms
IV	**Restricted variance, optional elements usually retained** abstain (from), (even) worse, worse (still), develop (from)(into), etc.

Habitual collocations

I	**Restricted variance, semi-literal** explode a myth/theory/notion/idea/belief, catch the post/mail, thin/flimsy excuse, etc.

⇔

II	**Restricted variance, literal** addled/brains/eggs, in-the-not-too-distant past/future, for certain/sure, potato/corn/wood, etc. chips, etc.
III	**Unrestricted variance, semi-literal** catch a bus/plane/ferry etc. train, run a business/company, etc. theatre, by dint of hard work/patience/repetition, etc.
IV	**unrestricted variance, literal** beautiful/lovely, etc. sweet woman, smooth/plump, etc, glowing/rosy cheeks, etc.
V	**restricted variance, literal optional elements usually dropped** shrug (one's shoulders), nod (one's head), clap (one's hands), etc.

Figure 4. Multiword expressions by Fernando (1996, p. 32)

Idioms can be divided into three sub-classes: pure idioms, semi-idioms and literal idioms. A pure idiom is defined as a type of conventionalized or restricted variant, and non-literal expression (Ia and Ib). For example, *spill*

the beans has nothing to do with *beans* or at least no longer, even though some historical connection may exist. A semi-idiom is defined as a type of expression which has one or more literal constituents and at least one with a non-literal subsense, usually special to that co-occurrence relation and no other (IIa and IIb). For example, when *drop* has the meaning *mention* only when it co-occurs with names. Some of these semi-idioms seem to be overlapped with habitual collocations which can range from restricted variance, literalness to unrestricted variance, unliteralness. Literal idioms meet the salient criterion for idioms: invariance or restricted variation, but they are less semantically complex than pure and semi-idioms like *on foot* and *for example/instance*. Habitual collocations, which belong to the other column, but which show idiomaticity, permit lexical alternatives, either restricted or unrestricted. For example, *addled eggs/brains* are restricted habitual collocations and *catch a bus/train/tram* are unrestricted habitual collocations.

Fernando's table to demonstrate the shading off of idioms and collocations is useful for understanding the concept and scale of them. However, some examples are dubiously chosen. For example, *potato crisps* and *potato chips* belong to restricted literal idioms and restricted literal habitual collocations respectively, but the reason of the distinction is not clear. *In order that/to* in restricted literal idioms is concerned with not word combination but grammar. Two examples in unrestricted habitual collocations are wrongly described and should be replaced by followings: *catch a bus/plane/ferry/train, etc.* and *run a business/company/theatre, etc.* Thus, some examples should have been selected and written more carefully.

Considering the idiomaticity that Fernando defines above, Glaser (1988,

pp. 265-272) introduces the definition of idiomaticity as an established term for the semantic property of an idiom, which is a stricter definition than that of Fernando (1996). Fernando and Flavell (1981) make a hypothesis that idiomaticity has two scales, language user judgment and structural properties. In order to answer the hypothesis, they examine which word combinations are regarded as idioms by language users and what factors make them identify the word combinations as idioms. As a result, *sitting on a time bomb*, *stood down/stand-downs* ranked high in the analysis. The criteria with which the word combinations are regarded as idioms are idiomaticity (54%), commonness of use and familiarity (34%) and awareness of a break in the coherence and cohesion of the text if the idiom were interpreted literally (25%).

Benson et al. (1986, pp. 252-253) briefly explain free combinations, idioms and collocations. These lexical combinations are categorized according to the following three criteria: degrees of cohesiveness or range, semantic opaqueness, and frequency; however, they can be presented along a continuum and the boundary between the three categories is not clearly set.

(a). Free combinations

Free combinations occur the most frequently. Their constituents are able to be combined freely with the widest range of other lexical items. In other words, they are the least cohesive of all combinations. For example, the noun *murder* can be used with many verbs: to *analyze, boast of, condemn, describe, disregard, film, forget, remember* and so on. These verbs, in turn, can be combined freely with other nouns: *accident, adventure, discovery, event, experience,* etc. (1986, pp. 252-253).

(b) Idiom

Idioms are made up of a smaller group of word combinations and relatively *frozen expressions* whose meanings do not reflect the basic literal meanings of their constituents. For example, *to have an axe to grind* (= to seek personal advantage) and *to have one's back to the wall* (= to be in a desperate situation) are idioms (1986, pp. 252-253).

(c) Collocation

Collocations are loosely fixed pairings between free combinations and idioms. For example, *commit murder* is not an idiom, because the meaning of the whole reflects the meaning of the constituents. Moreover, this word combination is also different from free combinations in two ways. Firstly, *perpetrate* seems to be only synonym of the verb which can replace *commit*. Secondly, and more importantly, the combination *commit murder* is used more frequently (1986, pp. 252-253).

Benson et al. (1986, pp. 252-253) add more explanation for idioms. Although they are often called *frozen expressions*, they allow limited variability like Fernando (1996, pp. 30-38). Grammatical or lexical variability is possible for many idioms. For example, *we'll kill (*or *we killed) two birds with one stone* and *mind one's (*or *one's own) business* are acceptable. Gramley and Pätzold (1992, p. 73), as well as Cowie (1994, p. 3170), point out that many idioms have two meanings: a literal and an idiomatic one. They give the examples *kick the bucket, go to the country, pull one's leg* and so on. Gramley and Pätzold indicate that only context makes the intended meaning clear.

There are also some composite units such as *foot the bill* and *curry favour* which colligate collocations and idioms (Cowie, 1981, p. 228). These units have been called *bound collocations* or *transitional collocations* (Cruse, 1986, pp. 41-46). Cruse explains that transitional collocations require a particular item in their immediate context. In other words, the constituents forming the transitional collocations are not likely to be separated. Furthermore, he distinguishes them from idioms by stressing that their components are modifiable as in the following example (1986, p. 41):

I'm expected to foot the bill
the electricity bill.
all the bloody bills!

Cruse (1986, p. 46) points out that transitional collocations are more frozen than ordinary collocations, but have a meaning close to that suggested by their component parts in contrast to idioms. One outstanding characteristic of combinations occurring in this group is that they are mostly used in their abstract meaning.

Weinreich (1969) and Altenberg and Eeg-Olofsson (1990) advance their opinion on idioms, collocations, and free combinations in their own ways. Weinreich's main interest (1969) is what idioms are and how they are different from non-idiomatic expressions. He considers a phraseological unit as a collocation and defines it as "any expressions in which at least one constituent is polysemous, and in which a selection of a subsense is determined by the verbal context, a cluster of characteristics that occur separately" (1969, p. 42). For him, idioms are expressed to involve at least

two polysemous constituents and a reciprocal contextual selection of subsenses, while free constructions are expressed to involve no polysemous constituents and be non-phraseological units. Thus, whether the word combination is an idiom, a collocation, or a free construction depends on how many of the constituents are polysemous.

In order to clarify his concept, he explains it with the example of *red herring* (in Amosova 1963, cited in Weinreich 1969, p. 42). When specialized subsenses are not taken into consideration, the expression means a fish of a certain kind, colored the color of blood and it belongs to free constructions. When red is selected as a specialized subsense and it refers to a herring smoked and cured with saltpeter, it belongs to phraseological units. The expression means *phony issue*, when the combination is opposed to the first two senses and the selection of subsenses is two-directional; there is no semantic relation between the subsenses of the components and the selecting feature is morphemic, so it is an idiom.

Altenberg and Eeg-Olofsson (1990) think that the fuzzy borderline between idioms, free combinations, and collocations is caused by the interpretations of collocation. In its broadest sense, collocation is regarded as *recurrent word combination*, while in a stricter sense, it is regarded as *habitually co-occurring lexical items* or *mutually selective lexical items* as the Firthian linguists generally interpret it. They claim that the broad sense focuses on specific word sequences such as idioms, compounds, and complex words, but the stricter sense is concerned with the relationship between lexical items in language and it may operate across word classes (e.g. *drink heavily, heavy drinking*). In the stricter sense collocation does not necessarily include idioms and other word sequences, but may include discontinuous

items (e.g. *he drinks pretty heavily*), and may allow lemmatization (e.g. *drink/drinks/drank/drinking heavily*) (1990, p. 4).

There are linguists who do not attempt to distinguish between idioms and collocations. Ridout and Clarke define collocation as "a group of words frequently found together and producing collectively a meaning not apparent from the meaning of each component part of the group" (as cited in Seaton, 1982, p. 25). This definition seems to equate collocations with idioms. Wallace (1979, p. 69) describes collocations as a class of idioms, which are defined in terms of a necessary condition, *decodability* (= opaqueness), i.e. how easily the expressions are decoded from the meaning of their constituent elements, but in the last section he attempts to differentiate idioms and collocations for the pedagogical need. According to the degree of *decodability*, idioms are classified as opaque or transparent if they are easily decoded. Idioms falling into the area of transparent expressions are called *restricted collocation* and only opaque expressions are called idioms.

Nagy (1978, p. 296) also points out that some non-idiomatic expressions are referred to as idioms, citing Fraser's definition of idioms as "a constituent or series of constituents for which the semantic interpretation is not a compositional function of the formatives of which it is composed and no part of which contributes to the semantic interpretation of the expression" (Fraser, 1970, p. 20, cited in Nagy 1978, p. 296). For example, Ross (1970) lists *hold one's breath* and *lose one's temper* as idioms, but they cannot be idioms, according to Fraser's definition. He also shows that the expressions such as *take a bath* are idioms. Lehrer (1974, p. 187) confesses that a fairly large part of idiomatic constructions remain to be studied, although the semantic position that the co-occurrence of words is the result of their

meaning is basically correct for most sentences. As lexical co-occurrences that are arbitrarily restricted are considered to be like idioms, i.e. linguistically non-productive, idioms are not the subject of research in the semantic field because the aim of a linguistic description in the field is to describe and explain the productive processes of language.

As stated above, many linguists attempt to distinguish among idioms, collocations, and free combinations according to the linguists' own criteria, although the three word combinations are all along a continuum but have an unclear boundary between them. Two criteria are common among the linguists listed above: (a) semantic opacity, which means that the meaning of the combinations is retrievable from each constituent, and (b) collocational restriction, which means that another synonymous word can be substituted for the constituent word in the word combinations. However, different linguists have different terms for these two criteria. They are summarized below:

Table 2. Various names for two criteria

(a)	semantic opacity	Fernando (1996), Cowie and Howarth (1996), Carter (1987), Korosadowicz-Struzaynska (1980), Cowan (1989), Gramley and Pätzold (1992)
	semantic opaqueness	Benson et al. (1986),
	compositionality	Nattinger and DeCarrico (1992)
	transparency	Aisenstadt (1979)
	decodability	Wallace (1979)
(b)	collocational restriction	Carter (1987)
	fixity	Fernando (1996)
	variance	Cowie and Howarth (1996)
	commutability restrictions	Aisenstadt (1979)
	combinational flexibility	Nattinger and DeCarrico (1992)
	impossibility of passivization	Korosadowicz-Struzaynska (1980)
	cohesiveness or range	Benson et al. (1986), Gramley and Pätzold (1992)
	lexical substitution	Cowan (1989)

2.2.2. Terminology problem

The previous section showed that different linguists name two criteria to distinguish idioms, collocations and free combinations in various ways. Collocation itself is also referred to in different ways, as reflected in its characteristics (Cowan 1989, pp. 25-26). Bollinger does not think that it is necessary to make a differentiation of the three word combinations and says that "it is of course, a matter of terminology whether collocations should be classes separately from idioms or as a major sub-class" (1976, p. 5). On the other hand, Gitsaki (1999, pp. 31-32) criticizes the large repertoire of the terms over the years used by linguists and stresses the need for a more precise definition and categorization of collocations. Terms for collocation including Gitsaki's (1999, p. 32) is listed below:

Table 3. Various terms for collocation

conventional syntagmes (Korosadowicz-Struzynska, 1980), *semitransparent expressions* (Yorio, 1980), *restricted collocation* (Cowie & Howarth, 1996; Cowie, Mackin & McCaig, 1983; Howarth, 1998a, b; Aisenstadt, 1979), *habitual collocation* (Fernando, 1996), *recurrent combination*, *fixed collocation* (Cruse, 1986), *idioms of encoding* (Makkai, 1972), *partial idiom* (Palmer, 1976), *memorized sentences and lexicalized stems* (Pawley & Syder, 1983).

2.3. Previous studies on collocations

2.3.1. Descriptive studies

Researchers started collocation studies with the assumption that words receive their meaning from words they co-occur with, and attempted to describe it from their own perspectives.

Collocation studies can be traced back to the work of H. E. Palmer, who is said to be the first linguist to use the term *collocation* in the present-day sense. In Palmer's *Second Interim Report on English Collocations* (1933) and *This Language-Learning Business* (1969), he defines collocation as word

combinations which contain one or more words having meanings only in that collocation. This completely hinders learners from acquiring the whole range of collocations from weak collocations (e.g. *see a film* and *an enjoyable holiday*) to the strongest and most restricted collocations (e.g. *see reason* and *burning ambition*)

In both of his articles, he highlighted the importance of collocation in the successful language learning. He stressed this because some English teachers fail to realize the existence of abundant collocations, especially irregular collocations, which consist of semantically opaque constituents of words such as *foot the bill*. In order to acquire a wide range of collocations, he points out the necessity for both teachers and students to be aware of the need for collocation acquisition.

Although Palmer pioneered collocational research, Firth's definition of collocations (1957) and his stance that lexical studies in terms of syntagmatic aspects are important and that collocations play an important role in word's meaning had a greater influence on his followers' studies on collocations. His main concern is literary stylistics, where it is necessary to recognize the distribution of words and certain collocations in order to explain literary effect. His definition of collocations is deduced from many examples of literary works sharing common classical sources. He explains collocations as follows (1957):

> The statement of meaning by collocation and various collocabilities does not involve the definition of word-meaning by means of further sentences in shifted terms. Meaning by collocation is an abstraction at the syntagmatic level and is not directly concerned with the conceptual or idea approach to the meaning of words. One of the meanings of *night* is its collocability with *dark*, and of *dark*, of course, collocation with *night*. This kind of mutuality may be paralleled in most languages. (p. 196)

In other words, collocation refers to co-occurring associations of two or more lexemes in a specific range of grammatical constructions and "mutual expectancy of words" (p. 196) is a distinguishing feature of collocations.

Firth also describes two ways of investigating collocations (1957, p. 196): (a) the stylistics of what persists in and through changes, and (b) the stylistics of personal idiosyncrasies; and both of these influence the followers' studies, like Sinclair (1966, 1991, see section 2.3.2.).

According to Bollinger and Sears (1968), who follow the Firthian concept of collocations, the syntactic and habitual association of words, "the characteristic company they keep" (1968, p. 53) with external reality is regarded as collocation. They explain the process of word acquisition by using *holophrastically* and *horizontally*. First a child apprehends the verbal expression *holophrastically*: In other words, he/she expresses an undivided word representing a total context. After that, he/she can differentiate larger combinations of words horizontally, in more extended pieces of speech based on the syntax. They point out that collocations are acquired relatively later through the process of L1 vocabulary acquisition.

Replying on Firth (1957), who stresses the importance of lexical studies in descriptive linguistics and regards the statement of collocations as the most useful approach, Halliday (1966) is concerned with how collocation defines membership of lexical sets, which are "groupings of members with like privilege of occurrence in collocation" (1966, p. 153) and proposes the lexico-grammatical system in his own framework as follows:

Table 4. Lexico-grammatical system by Halliday (1966, pp. 152-153)

	grammar	lexis
paradigmatic axis	system	set
syntagmatic axis	structure	collocation

According to his framework of a language system, collocation is one of the main components and central part in his lexico-grammatical system. He defines collocation as a syntagmatic relation of words which is linear co-occurrence together with some measure of significant proximity (1966, p. 152) and says that collocational relations intersect with structural ones. He points out that grammar does not always give an explanation of the relations between *strong* and *powerful*. In fact, *strong* and *powerful* are both members of a set of items and both of them collocate with *argument*, but they cannot always collocate with the same words. While *strong car* and *powerful tea* will either be rejected as ungrammatical (or unlexical), *strong tea* and *powerful car* can be acceptable. This explains that both of them depend on the syntagmatic relation into which each enters but that collocational patterning is independent of grammatical structures (1966, p. 150).

In relation to the notion of collocation and lexical set, Malmkjaer (1991) explains that it can be exploited in decision making on polysemy and homonymy. The different collocational environments associated with the word *bank*, (e.g. *cheque, deposit, manager, money*, etc.) and *bank* (e.g. *river, water, earth, trees*, etc.) show that bank is a homonym (Malmkjaer, 1991). In the meantime, non-cognate word forms (e.g. city and urban) have the same collocations. Therefore, it can be shown that they belong to the same set (1991, p. 303).

Greenbaum (1960) and Mitchell (1971) also follow the Firthian concept of

collocations. They study collocations from an integrated approach of lexis and grammar and define them as association of words whose lexical and syntactic patterning is viewed as distinct but interrelated. They emphasize that in collocation study, the lexical view should not be separated from the syntactic view, because the collocational meaning is changed according to different syntactic patterning (Greenbaum, 1960, p. 12; Mitchell, 1971, p. 50).

Greenbaum (1960, p. 12) claims that limited, homogeneous grammatical classes yield the most useful analytic results and points out that a serious disadvantage of an item-oriented approach in the collocation study is that ignoring syntactic restrictions on collocations leads to inaccuracy. In other words, both lexical and syntactic patternings are important to fix collocations. If either is incorrect, then the phrase product is not a collocation. Greenbaum exemplifies the advantage of interrelated patterning between lexis and syntax by using an item *much*:

> *Much* collocates with *like* in negative sentences, not in affirmative sentences.
>
> I *don't like* him *much*.
> But not *I *like* him *much*.
>
> However, if pre-modifiers are added to *much* in affirmative sentences, it can be acceptable:
>
> I *like* him *very much/ too much/ so much*.
>
> (Greenbaum, 1960, p. 12)

Mitchell (1971) has the same opinion as Greenbaum and maintains that the meaning of collocations is influenced not only by their contextual extension of lexis but also the generalized grammatical patterns within

which they appear. He focuses on morphemes of words and explains that words which contain the same lexical morphemes do not necessarily mean the same when rearranged or inflected. For example, *hard* in *hard work* means something different from *hard* in *hard-working*.

In addition to explaining collocations and illustrating them with some examples, McIntosh (1961, p. 193) proposes a useful framework of four categories for the determination of style in language as follows:

> There is the possibility of four obviously distinct stylistic modes: normal collocations and normal grammar, unusual collocations and normal grammar, normal collocations and unusual grammar, unusual collocations and unusual grammar. (p. 193)

He argues that "normal collocations are too familiar and thus banal and abnormal collocations are unfamiliar and thus indecipherable" (1961, p. 193). In order to bridge the gap, standard language norms are necessary, because without this, it becomes impossible to communicate, as no one has the same experience or set of associations.

McIntosh also claims that native speakers of English are the only people who can produce new word combinations, using their intuition of the collocational range of words. He describes their intuition of new formations as "range-extending tendencies" (1961, p. 193). An example of collocation which has been created in this way is the lexical item *key* which has recently considerably extended its range: *key move, component, policy,* etc. Collocational acceptability including new formations can be statistically analyzed on large corpora which are the product of native-language speakers.

However, this argument of McIntosh is invalid in the background that English is now regarded as an international language around the world. Crystal (2003) updates Kachru's (1992) model showing the English-speaking population and explains as follows: In the Inner Circle, 320 to 380 million people use English as a mother tongue; in the Outer Circle, 300-500 million people use English as a second language; and in the Expanding Circle, 500 million to one billion people use English as a foreign language. This figure indicates many non-native speakers around the world communicate with each other in English. Therefore, there is a great possibility that new word combinations spoken by not only native speakers but also non-native speakers of English can be mutually intelligible and acceptable.

Carter (1987, pp. 36-57), who is like a bridge between Greenbaum (1960), Mitchell (1971) and McIntosh (1961), fundamentally follows Firth's definition of collocations. He describes them as a group of words which co-occur repeatedly, and studies these patterns of co-occurrence grammatically and lexically. Grammatical studies look at the needs of particular pedagogic projects for ESL or EFL learners, while lexical studies aim to find the lexical patterning of texts and tend to make use of computerized lexical research. Carter emphasizes that because both grammatical patterning and lexical patterning influence the meaning of collocations, the study should include both of them, as do Greenbaum (1970) and Mitchell (1971).

Carter also explains collocation in terms of *frequency* and *range* as does McIntosh (1961) and above all, he stresses that the latter is the most suitable tool to describe the collocational restriction. He shows the difference of ranges between words, using some examples which shed light on his idea.

Good examples he gives are *putrid, rotten, rancid* and *addled*, which have restrictive ranges and refer to a substance which has decayed and can no longer be used. *Putrid* collocates with fish, *rancid* with butter, oil, lard, etc., and *addled* is confined only to eggs, while *rotten* can collocate with fish and eggs and also with fruit. Thus, these properties of *rotten* mean that by this criterion it is a core word and, by contrast, *putrid, rancid, addled* are less core. In short, synonymic relations between words can be usefully distinguished with reference to the different collocational ranges of the synonyms involved. He concludes that this aspect of collocation is a valuable and revealing one and is one of particular relevance to vocabulary in language teaching.

The focus of Jackson (1988) is different from those of Greenbaum (1960) and Mitchell (1971), who are interested in the explanation of collocations in terms of not only a lexical view but also a grammatical view. Jackson also differs from McIntosh (1961), who focuses on productivity of new collocations by native speakers of English. He highlights the difference between collocations and idioms and states that "collocation is not a fixed expression, but there is a greater than chance likelihood that the words will co-occur" (1988, p. 96). For example, in the sentence, "He had a false _____," the nouns that fill the slot in this structure might include *eye, nose, beard, expectation* or *passport*. Without the article in this structure, teeth and eyebrows could be added. If the subject of the sentence were *the car* rather than *he*, *numberplate* might be expected. Thus, unlike idioms, collocations are combinations which regularly keep company not with one word but with certain other words.

Jackson also refers to a certain mutual expectancy, range and

collocational restriction, which are important features in collocations. Especially, regarding mutual expectancy, which is reminiscent of Firth's definition, he exemplifies this using *tooth* and *false*. *Tooth* is more likely to collocate with *false* than *false* is to occur in combination with *tooth*, because a number of alternative nouns can be combined with *false* such as *eye, nose, beard, expectation* and *paper,* while tooth can be combined with fewer adjectives such as *irregular* and *decayed*.

Finally he points out (a) the importance of the corpus of spoken and written text and (b) the importance of lexicographers' intuitions and insights into their own and fellow-speakers' knowledge of language use in compiling dictionaries, and (c) criticism for the different state of treatment of collocations in some dictionaries (1988, pp. 99-103).

Aisenstadt (1979) is also concerned with describing collocations, compared with idioms and free combinations (see section 2.2.1) and considering certain characteristics of them. He introduces four characteristics. One is that restricted collocations have various structures (e.g. *V-N, A-N* and *V-Adv*) and the patterns are command admiration, attention, decision and so on. The second is that the meaning of restricted collocation constituents may be characterized by one of the following: (a) the constituents have a very narrow specific meaning which does not allow a wide range of commutability (e.g. *shrug one's shoulders*), (b) the constituents are used in a secondary meaning, often abstract or figurative (e.g. *clench one's hands, clench one's fists*), or (c) the constituents have a weakened and grammaticalized meaning of verbs, which can be changed result in a possible interchange of those verbs (e.g. *give a laugh*, *have a laugh*). The third is that the commutability between the restricted collocation constituents may be

restricted in the following: (a) both constituents of restricted collocations are restricted to a limited number of co-occurring words (e.g. *shrug one's shoulders*, *square one's shoulders*, *hunch one's shoulders*), or (b) the commutability of only one constituent of the restricted collocation is restricted (e.g. *make a decision*, *take a decision*). The fourth is that while many restricted collocations belong to the *neutral* layer of vocabulary, a certain number is mainly *colloquial*.

The interest of Halliday and Hasan (1976) is related to lexically predictable collocational chains that extend beyond the boundaries of a sentence in textual cohesion, different from those of other linguists who pay attention to idiosyncratic and unpredictable co-occurrences of words. They define collocation or collocational cohesion as all the various lexical relations which do not depend on any systematic semantic relation but which have the tendency to share the same lexical environment such as *bee...honey* and *walk...drive*. This is simply a cover term for the cohesion in which lexical items are associated with each other in some way or other.

Collocations are systematically defined from multi-criteria by Gramley and Pätzold (1992) and Nation (2001). It seems that each concept of collocations is slightly different from that of earlier researchers in terms of the synthetic description. Gramley and Pätzold (1992) and Nation (2001) maintain that only one criterion is not enough to define collocations and that "the large number of scales needed is evidence of the range of items covered by the term" (Nation, 2001, p. 329).

Gramley and Pätzold define collocations as "combinations of two lexical items which make an isolable semantic contribution, belong to different word classes and show a restricted range" (1992, p. 61). This definition is based on

six main criteria, which are discussed in detail below:

1. Two lexical items, not grammatical ones

   This refers to what is defined as collocations mentioned above.

   e.g.) *strong coffee, white currant*

2. Two categorizations: lexical combination and grammatical combination

   In accordance with Benson et al. (1986), collocations can be divided into lexical combinations and grammatical combinations (see section 2.3.4).

   - Lexical combination—dominant words only (noun, adjective, adverb and verb)

     e.g.) *compose music, strong tea, affect deeply*

   - Grammatical combination — dominant words + preposition or a grammatical construction

     e.g.) *by accident, apathy towards, angry at*

3. Independent meaning of constituents

   This means that the "individual constituents contribute to the meaning of the combination as a whole" (p. 62). In other words, each constituent of a collocation can have special meanings which are restricted to one particular collocation, and the more opaque some individual constituents are, the more closely they are linked to the other constituents. This important point about collocational meaning helps to set up two different classes: collocations and idioms.

e.g.) *white paint, white grape* < *white lie* (= *harmless*), *white night* (= *sleepless*) < *white horses* (= *white-topped waves*), *white coal* (= *water as energy source*) **('<' means more opaque)**

4. Word classes

Lexemes belong to different word classes such as *demand-meet* (noun-verb), *face to face* (noun-preposition-noun) and *apologize-profusely* (verb-adverb).

5. Range

This means that items are different in terms of their close relationship to other items and this criterion helps to distinguish between free combinations and collocations. In the case of *decide on a boat*, if the meaning is *choose (to buy) a boat*, then it contains the collocation *decided on*, while if the meaning is *make a decision while on a boat*, it is a free combination (cited in Benson et al., 1997). The number of free combinations is limitless and *the BBI dictionary* (Benson et al., 1997) is made up of only collocations.

6. Fixedness

Different collocations have different degrees of fixedness.

(a) Morphology

In some collocations, adverbs do not form the -ly morpheme such as *swear-blind* and *forget-clean*.

(b) Substitutability

In some collocations, constituents can be replaced by their synonyms.

For example, *hardened criminal* and *confirmed criminal* are acceptable, although **hardened burglar* or **hardened murderer* are not.

(c) Additions and Deletions

Additions have taken place frequently, while deletions are much rarer. In case of additions, most often pre- or post-modifying nouns are normal.

e.g.) The oil-exporting nations…may soon restrict production below the level needed to *meet* still rising world *demand*. (demand-meet; B. Ward, *Progress for a Small Planet*, p. 15)

(d) Displacement

Personal pronouns can be substituted for constituents in some collocations:

e.g.) Quality is our *promise*. Cancellation is your privilege if we fail to *meet it*. (advertising material, *The Economist*, May 1991)

(e) Separability

In some collocations, word combinations, which belong to bound collocations (Cruse, 1986, p. 41) can not be separated, such as *foot the bill* and *curry favor*.

(f) Distribution

The distribution in collocations is relatively changeable. For instance, *They met their demands; their demands, which were not met completely*... are both acceptable.

As mentioned above, many criteria have to be met in order to regard word combinations as collocations. Nevertheless, it can be said that collocations themselves are vague because of a low degree of formal fixedness in

combinations with the composite semantic structure. Gramley and Pätzold argue that one solution to distinguish between collocations and other word combinations is to rely on one of objective criteria, the frequency of co-occurrence of words in corpus-based research.

Nation (2001) argues that using a set of scales is the most effective way of setting up criteria for grouping items as collocations, and setting up the groups of collocation and 10 scales which have been identified by many researchers would be needed to do it. Compared with the criteria Gramley and Pätzold (1992) present, the criteria of Nation (2001) are further segmentalized, including criteria 3, 4, 5 and 6 of Gramley and Pätzold (1992). Nation's 10 criteria are as follows:

1. Frequency of co-occurrence

A very important criterion is this frequency of co-occurrence, which should be considered along with collocation range and which is measured by computers in large corpora (see Kjellmer, 1984 in Computational Study).

2. Adjacency

Collocates can occur from next to each other or be separated by variable words or phrases like an example, "*little did x realize*" (see *collocational frameworks* examined by Renouf & Sinclair, 1991 in Computational Study).

3. Grammatically connected

Collocates can usually be seen within the same sentence as part of a grammatical construction, but it is possible to see items within the same text, not grammatically connected to each other but in a lexically cohesive

relationship as collocates. Kennedy gives such an example[1] as: "Her uniform was of rich raw *silk* in a *shade* which matched her hair" (1998, p. 113). In this sentence, *silk* and *shade* can be regarded as collocates in a lexically cohesive relationship.

4. Grammatically structured

In addition to *habitual co-occurring* of words, another criterion, *grammatically structured* should be needed. For example, *although he* and *of the* should not be contained in collocations which take account of the major divisions that would be made in analyzing a clause, although they occur so often (see Kjellmer, 1982 in Computational Study).

5. Grammatical uniqueness

Collocations range from grammatical uniqueness (e.g. *hell for leather*) to grammatically regular patterns (e.g. *weak tea*) with patterned exceptions like *go to bed/town/hospital* (without an article) as the mid-point.

6. Grammatical Fossilization

Collocations range from no grammatical variation (e.g. *by and large*) to changes in part of speech (e.g. *Her heart wasn't very strong and her life assurance* ***premiums*** *weren't cheap. It cannot have been easy to meet* ***them***. [cited in Gramley and Pätzold, 1992, p. 65]) with inflectional change (e.g. *He kicked the bucket*.) as the mid-point.

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[1] Kennedy's example seems to be wrong: *silk* collocates with not *shade*, but *raw* and *rich*. The example of distribution given by Gramley and Pätzold (1992) can be applied to *grammatically connected*.

7. Collocational specialization

Collocations range from always mutually co-occurring (e.g. *commit suicide*) to all occurring in a range of collocations (e.g. *hocus pocus*) with one bound item (e.g. *kith and kin*) as a mid-point. Collocational specialization is equivalent to what Aisenstadt (1981) calls *restricted commutability*.

8. Lexical fossilization

Collocations range from unchangeability (e.g. *No fear!*) to allowing substitution in all parts (e.g. *last month*) with allowing substitution in one part (e.g. *permit/allow/give access to* [cited from Schmitt, 2000, p. 79]) as a mid-point. These criteria indicate that collocations from this entire range should be included when counting the frequency of collocations.

9. Semantic opaqueness

Collocations range from semantic opaqueness (e.g. *of course*) to semantic transparency (e.g. *open the door*). This criterion and grammatical fossilization are commonly used to define an idiom.

10. Uniqueness of meaning

Collocations range from only one meaning (e.g. *on behalf of*) to several meanings (e.g. *kick the bucket* has two meanings: to die and to kick the bucket with your foot) with related meanings as the mid-point.

Nation points out that the ranges in each of the 10 criteria have all been graded from most lexicalized to least lexicalized and gives the example of *hocus pocus* as a highly lexicalized collocation according to the 10 criteria.

However, criteria 1 and 2 are not regarded as relative scale, but absolute scale by computational linguists who try to indicate objective criteria such as counting and calculating frequency and range with statistics and computer techniques to identify collocations.

In summary, Firth's definition of collocation and his stance have been strongly supported by his successors in Firthian studies, who have further developed his concept. Collocations have recently tended to be defined from more and more angles, using an increasing number of different features. However, it seems difficult to identify collocations according to the definition of collocations which linguists in the descriptive studies argue, because many linguists only rely on the subjective criteria such as semantic opacity and collocational restriction.

2.3.2. Semantic studies

Semanticists criticize the studies of collocations by Firth and his followers as insufficient and attempt to investigate collocations in terms of semantic framework and syntagmatic lexical relations under the scope of semantics. In spite of mentioning some shortcomings of the collocational studies by Firth and his followers, they do not give strong enough support for their concept and the function of collocations.

Lyons (1966), Palmer (1976), Katz and Foder (1963) and Lehrer (1974) criticize Firthian studies of collocations and attempt to explain them in the semantic field.

Lyons (1966, pp. 289-297) considers Firth's treatment of collocations as insufficient in that he only places collocation in an intermediate level between grammar and situation, but he never defines the notion of

collocation in his general theory. Firth (1957, p. 196) states that "one of the meanings of *night* is its collocability with *dark*, and of *dark*, of course, collocation with *night*." Moreover, Firth introduces and exemplifies the notion of collocation and gives an answer for the question, "what collocations are synchronically acceptable or unacceptable?" by an analysis of Swinburne's poetic diction and of certain letters of the 18th and early 19th centuries. One of the findings in his analysis is that certain collocations remain current over long periods of time, whereas others do not. However, Lyons thinks that the analysis is not synchronic nor should the collocations shown by Firth be considered as collocations of units but as idioms. He suggests that collocations should be studied as part of the synchronic and diachronic analyses of language. Unfortunately, Lyons provides only criticism of the Firthian theory of meaning without any concrete alternatives.

Similar to Lyons (1966), Palmer (1976) also criticizes Firth's treatment of collocation as merely part of the meaning of a word and his limited concern with the more obvious and more interesting co-occurrences, the mutual expectancy of words. His argument as a semanticist is that there is a restriction on the use with a group of words that are semantically related, which is the matter of range suggested by McIntosh (1961). He also states that there are three kinds of collocational restrictions: collocations based wholly on the meaning of the item as in the unlikely *green cow*, collocations based on the range which is characterized as some semantic features in common as in the unlikely *the rhododendron passed away* and collocations based on collocational restrictions in a strictest sense, with neither meaning nor range as *addled* with *eggs* and *brains*.

Katz and Fodor (1963, pp. 172-173) argue that a semantic theory of a language would "take over the explanation of the speaker's ability to produce and understand new sentences at the point where grammar leaves off" (pp. 172-173), and try to establish the semantic theory which would organize and systematize facts about meaning of lexical items which are perceived as a combination of the semantic properties, free from grammar. They also attempt to explain collocations with these semantic concepts of theirs. They are reflected in a language dictionary, in which words contain a selection restriction and can be explained with a semantic marker. In this way, they seem to consider that the semantic approach is more likely to explain why words can be found together.

Lehrer (1974, pp. 173-176) provides a more comprehensive explanation for insufficiency of collocation studies by Firthian linguistics. From his semantic viewpoints, he points out some contradictory points in the lexical hypotheses whose stance is taken by Firth (1957) and Halliday (1966) as follows:

1. Firth never gives an exact definition or paraphrase of collocational meanings. In his 1957's paper, he mentioned that "meaning by collocation is an abstraction at the syntagmatic level" (cited in Lehrer, 1974, p. 174) and is not directly concerned with the conceptual approach to the meaning of words. Although he gives an example of *night* and *dark* as a collocation, he never gives a proper definition.

2. Halliday has attempted to discuss the notion of a collocational level in terms of a general theory of grammar, but he failed. There are two other

alternatives. One is that formal linguistic patterns can be explained with not only grammar but also semantic terms. The other is to recognize that there will still remain patterns which cannot be accounted for in formal linguistic patterns even after a grammar has been constructed.

3. Halliday recognizes that frequency of occurrence is necessary in collocation study, but he does not focus much on study of large corpora as a source of data on collocation and sets. It is important to notice which pairs of words occur with less than expected frequency, as well as those that occur with more than expected frequency.

4. Sinclair (1966) discusses a lot of theoretical and methodological problems involved in the study of text to discover collocational sets, but he includes deviant sentences such as poetry and fiction stories. It is important to use all kinds of discourse, not specific one in determining collocational sets.

5. Frequency studies are exaggerated as a useful way of determining what words belong together in a lexical set, but the more important question is what conclusions are to be drawn from the results. Furthermore, there is no explanation of why certain pairs of terms occur less often than expected.

Thus, Lehrer (1974, pp. 173-176) criticizes the lexical hypotheses in which Firth and other linguists cannot explain selection restriction in regard to the above five points.

Then he attempts to explain collocations with semantic features, but it seems to be extremely ambitious. Considering the direct object of *smell*,

[smellable] is useless unless every possible direct object for *smell* in the language can be covered with the feature [smellable]. For example, possible direct objects are more than physical objects like *fresh air* or *stale smoke*. If they are forced to be classified into physical objects, we have to accept the following examples, "*He hit the fresh air with a stick*" and "I smelled a rat", but we cannot.

He also referred to arguments of Leisi (1953), Gruber (1965) and McCawley (1970) who attempt to explain semantic restrictions with semantic features. They all exemplify paradigmatic contrasts involved in words so that differences of selection restrictions can be predicted on the basis of meaning and attempt to devise some features that would describe the rest of the cases. For instance, *kick*, *slap* and *punch* McCawley (1970, pp. 180-181) raised as examples refer to specific actions as well as to the instruments *foot*, *open hand* and *fist*. *Kick* can take as an instrument what can be put on or in some way attached to a foot like a *He kicked me with a boot* (*slipper, skate, snowshoe, ski*). *Slap* needs an open hand, a folded newspaper or even a fish (e.g. *I held the fish between my toes and slapped the cat with it when she tried to eat it.*), while *punch* means to hit a compact, hard and physical object with one's fist (e.g. *He punched the wall angrily, then spun round to face her.*) Although Lehrer (1974) admits McCawley's point of view that different words have certain distributable meanings, whether it is correct or least correct for most people remains to be worked out.

In conclusion, he proposes the mixed positions in which the lexical and semantic positions on lexical co-occurrence are combined, but he does not support any strong evidence for why the mixed position is possible.

Cruse (1986) considers collocations as one of the most important components in the semantic field. Cruse (1986) defines collocation in terms of three important points: frequency, collocational restriction and semantic opacity. According to Cruse (1986, p. 41), collocation is regarded as sequences of lexical items which habitually co-occur, which are highly restricted contextually, but which are basically transparent in the sense that each lexical constituent is semantic. Compared with idioms, collocations are semantically more transparent: however they have some distinctly idiom-like characteristics, too. For instance, *foot the bill* and *curry favor*, are not likely to be separated.

Cruse, who is similar to other semanticists, also describes collocational restrictions as "semantic and arbitrary co-occurrence restrictions" (1986, p. 279), by examining the syntagmatic meaning relations between lexical units. For example, *kick the bucket* is only used with a human subject, but its propositional meaning is merely *die* and not *die in a characteristically human way*. That is, "the restriction to human subjects is semantically arbitrary" (1986, p. 279). Then, the collocational restrictions are divided into three kinds from the viewpoint of the degree to which they can be set out in terms of necessary semantic traits. One is systematic collocational restrictions when they can be fully specified. For example, *grill* and *toast* denote the same process or action from the view of *agents* but different from the point of view of *patients*. They are different in the method that we *grill* raw food and we *toast* cooked food. The second is semi-systematic collocational restrictions when some collocations have certain exceptions. For example, *customer* gets something material in exchange for money, whereas *client* typically receives less tangible professional or technical service. The

last one is idiosyncratic collocational restrictions when their collocational ranges can only be illustrated by listing allowable collocates. For example, it is possible to say *spotless kitchen* but not to say *flawless kitchen*.

Since the 1990s, some linguists have been interested in semantic prosody, which is introduced by Sinclair (1991) and Louw (1993). It refers to "a consistent aura of meaning with which a form is imbued by its collocates" (Louw, 1993, p. 157) or "a standard distinction between aspects of meaning which are independent from speakers (semantics) and aspects which concern speaker attitude (paradigmatics)" (Stubbs, 2001, pp. 65-66)[2]. *Prosody* originated in phonological coloring which is able to go beyond segmental boundaries and Sinclair applies the term *prosody* to semantic features of collocations whose habitual collocates are capable of coloring them. As a corpus is being developed, semantic prosody, which is inaccessible through intuition, can easily be obtained through the objective examination of how language is actually used via computers. In other words, corpus linguistics reveals a greater mismatch between the products of introspection about language and those of extrospection and new objective language facts about language. Thus, collocation has been studied within the new semantic domain with the assistance of corpus linguistics.

Sinclair (1991) strongly argue that how carefully language is patterned can be gained by selecting text and considering all the instances by showing concrete examples. One example is a phrasal verb *set in* and by the search of the COBUILD corpus 114 examples are examined. His main finding is that *set in* commonly collocates with unpleasant states of affairs and only three

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[2] Stubbs (2001, pp. 65-66) preferably uses *discourse prosodies* instead of *semantic prosody*, in order to express the relation to speakers and hearers and their function in creating discourse coherence.

refer to the weather; a few are neutral, such as *reaction* and *trend*. What typically sets in is *bad weather*, *decay*, *despair*, *rot* and *rigor mortis* and not one of these is conventionally desirable or attractive. He recommends that building up these kinds of database for teachers' reference by accessing much more reliable information from corpora leads teachers to provide a more confident way of teaching to learners, although he shows no concrete materials for direct exploitation in the classroom.

Louw (1993) explores the possibility of semantic prosodies and suggests what role they may play in texts. In order to examine semantic prosodies of *utterly* which are found in Larkin's poems, 99 citations drawn from the original 18 million word corpus at COBUILD are analyzed. The concordance shows that *utterly* connotes *bad* as in *utterly confused* and *utterly ridiculous*. On the other hand, there are few *good* examples. In fact, only four examples are found as *good* but all of them carry a fairly obvious ironic intention. For the findings he makes a comment that they enable us to determine criteria for recognizing semantic prosodies, only because "the prosody on *utterly* is as consistent as it is that it admits the possibility for irony" (Louw, 1993, p. 164). Thus, large corpora allow us to extract profiles of semantic prosodies which reveal the real speaker's intention.

The aim of Stubbs' study is to demonstrate semantic prosody of lexical collocation, which is one of the norms of the use by investigating corpora, along with other linguists such as Sinclair (1991) and Louw (1993). He regards collocation as "the habitual co-occurrence of words and a purely lexical relation between words in linear sequence, irrespective of any intervening syntactic boundaries" (1995, pp. 245-246). In his later study (2001, p. 29), he clearly adopts the rather statistical stance that collocation

should be defined as frequent co-occurrence. He argues that in order to identify lexical collocations, semantic prosody should be examined by studying corpora of naturally occurring data. He gives a brief example of the semantic field of *cause and effect* by accessing corpora. Table 5 shows his explanation and examples.

Table 5. Semantic field of *cause and effect* by Stubbs (1995, pp. 252-253)

words	semantic prosody	collocates
CAUSE	predominantly negative	*accident, problem, disease, chaos, embarrassment*
CREATE	neutral	*condition, havoc, illusion, image, problems*
REASON	not very clear	*altruistic, apparent, cogent, compelling, different, earthly, good, main, obvious, political*
RESULT	neutral	*disappointing, end, expected, final, inconclusive, interim, preliminary, unintended*
AFFECT	very negative	*adversely, badly, directly, negatively, seriously*
EFFECT	very negative	*adverse, deleterious, devastating, dramatic, harmful, ill, negative, profound, toxic.*
CONSEQUENCE	very negative	*catastrophic, devastating, dire, disastrous grave, negative*

Stubbs recommends that teachers use such semantic prosody that cannot be obtained without corpus assistance and that it is very reliable information about collocations for pedagogical implication.

Rudanko (2001) is also concerned with examination of semantic prosody. He claims that the concept of connotation should be investigated not only at the level of images aroused by individual lexical items, but at that of collocational patterns, and in order to examine it, not the intuition of native speakers but large electronic corpora is needed. He supports Sinclair's study of the concept of collocational coloring in 1991, but points out the problem

that his study is limited because only present-day English is dealt with. Then, based on these claims of his and the problem of Sinclair's study, he examines changes of the collocational coloring of the verb *set in*, of the adjective *bent* and *fraught* and of the verbs *cause* and *bring about* in three different corpora of collected examples from the 18th century, the 19th century, and the 20th century, for the three different centuries. The Chadwyck-Healey Corpus of 18th Century Fiction, the Corpus of 19th Century English, and the COBUILD corpus are respectively used for 18th century English, 19th century English and 20th century English. The findings show that there can naturally be different degrees of collocational coloring in each target word. For example, the two verbs expressing *causation*, *cause* and *bring about* are different in collocational coloring. In present-day English, *cause* is apt to take a negative complement, whereas *bring about* has a neutral or positive complement. In the 19th century, *cause* had a tendency to choose objects whose referents were ordinarily either neutral, or unpleasant in flavor, while *bring about* seemed less common in this century and tended to select objects which referred to events or things that were conventionally neutral or pleasant in flavor. In the 18th century, *cause* had objects that referred to events, actions or properties that had a negative flavor, while *bring about* was less frequent than *cause* in this century and it accompanied relatively various objects. Thus, from his diachronic study, collocational coloring is found to change according to different centuries.

In summary, semanticists have criticized the studies of collocations by Firth and his followers and developed an approach to collocations in terms of the semantic framework and syntagmatic lexical relations under the scope of semantics. In the 1990s, thanks to the development of computer technology,

collocation has been studied in terms of a new semantic framework, *semantic prosody,* which is related to an objective criterion, frequency.

2.3.3. Computational studies

Researchers in computational studies have been interested in collocation studies in a certain environment in which the items composing collocations occur.

The aim of the study on collocations by Sinclair (1966) is to examine how strong the partnership of each constituent in a collocation is in terms of the perspective of their frequencies of co-occurrence in large quantities of text. Indeed, he believes that lexical study has a strong possibility to show strong and close relationships between items. However, there is a problem about how the close relationships of collocations should be measured. He suggests that the solution is to restrict the collocating items to a span of fixed constituents on either side of the specified main word (the node) whose patterning is being investigated.

Sinclair also gives useful definitions of some terms such as *node*, *causal collocations*, and *significant collocations*, which can be employed in text analysis. Regarding *node*, he defines it with two other terms a *span* and a *collocate* as follows:

> We may use the term *node* to refer to an item whose collocations we are studying and we may then define a *span* as the number of lexical items on each side of a node that we consider relevant to that node. Items in the environment set by the span we will call *collocates.* (Sinclair, 1966, p. 414)

The definition of these terms is later cited by some descriptive researchers

(e.g. Carter 1987) and lexicographers (e.g. Kjellmer 1994) in defining collocations.

Casual collocations and *significant collocations* are two groups into which Sinclair (1966) divides collocations. They can be distinguished by considering the frequency of repetition of the items which are under investigation. He refers to casual collocation as lexis which is most unlikely to have any predictive power over the node and which occurs accidentally, while significant collocation is what has a strong tendency to occur near the node. However long a chosen text is, any discrepancy between the predicted and the actual figures can be solved by statistical tests, giving a positive correlation, negative correlation or an absence of correlation.

The paper by Berry-Rogghe (1973) consists of two parts: an explanation of corpus study on collocation and the results of his pilot study. In the former part, he points out a disadvantage of Firth's explanation of collocations, namely the rather unclear notion of terms which he described. In order to overcome that shortcoming, he clarifies some key terms of collocation study such as *collocate* and *node* as well as explains corpus study on collocation. As a technically more helpful definition of collocation, he cites Halliday's definition of collocation (1961) that "syntagmatic association of lexical items, quantifiable, textually, as the probability that there will occur at n removes (a distance of n lexical items) from an item x, the item a, b, c..." (cited in Berry-Rogghe, 1973, p. 103). He also introduces the aim of collocation study with several key terms: "the aim is to compile a list of those syntagmatic items (collocates) significantly co-occurring with a given lexical item (node) within a specified linear distance (span)" (1973, p. 103). As for span, he concludes that adopting a span of four is appropriate for any type of data and

for all nodes which are non-grammatical items, except in the case of adjectives where a span of only two seems indicated (1973, p. 108).

Considering the procedure of statistical data, he describes two steps (1973, p. 105). The first step is computing the probability of B co-occurring with A certain times, if B were randomly distributed in the text. The next step is evaluating the difference between the expected number of co-occurrences and the observed number of co-occurrences. In this case, the *z-score* is an effective statistical measure to decide whether the difference between observed and expected frequencies is significant or not.

Based on these ideas, in his second part, Berry-Rogghe conducted a pilot study whose aim was to attempt to make explicit the notion of collocation in statistical and computational terms and answer some methodological questions such as "What is the optimal span size?" and "Should grammatical items be ignored?" In order to conduct this study, 71,595 items were used as running words, all of which were derived from three works: one was a 19th prose work and two were modern plays. The texts were processed on the Atlas computers at Manchester and Chilton.

His results indicated that common items such as *house* most frequently collocated with grammatical items: *the* or *this* and the verb: *sell*. Regarding the optimal span size, further prose work, increasing the span size from three to six, had both a positive and a negative effect. He explained that it might be because of the difference between the mean sentence length, which amounted to 14.03 in the prose and 6.7 in the modern plays. Thus, as a first attempt to display the statistical analysis that can be used and making the terms used in the text analysis clear, Berry-Rogghe's study was a breakthrough in those days, although the size of the corpus was very small.

Finally, he anticipated the next stage in computational study of collocation and stated: "The eventual aim of a collocational analysis is not just to establish sets of syntagmatically related items but to extend these to include paradigmatically related items so that eventually a 'semantic field' might be established" (1973, p. 111).

Jones and Sinclair (1974) conducted their study in text analysis. The hypothesis under examination in this study is whether lexis is an independent organizing principle in natural language. In other words, the main concern of this study is to find evidence of lexical rather than grammatical organization of the natural language. Before they started their study, they define several key factors in computational study: lexical item, node and collocate, collocation, and span. First, they define a lexical item as "a unit of language representing a particular area of meaning which has a unique pattern of co-occurrence with other lexical items" (1974, p. 16). They are contrasted with the term, *grammatical item* (e.g. *the* and *and*) which a unit of language whose presence in the text is affected by a grammatical function, not lexis. Second, *node* is defined as an item whose pattern of occurring with other words is examined and *collocate* as any item which is likely to occur with the node in a certain environment (1974, p. 16). We know that they are items named for convenience sake and there is no difference between them. Third, *collocation* is the co-occurrence of two items in a text within a certain environment and *frequency* is a main factor to identify collocations in computational study. Fourth, *span* is defined by "specifying a standard number of orthographic words, disregarding the grammatical structures of which they form a part" (1974, p. 21). Conventionally, span positions of collocates are fixed according to different studies. In their study,

positions *N-4* to *N+4* are regarded as appropriate.

After clearly defining these key words, they prepared 135,000 spoken-word corpus extracted from 30 speakers' conversations at the Universities of Edinburgh and London. They were all recorded and transcribed. The conversations consisted of an average output of eight to 10 thousand words per hour and covered various kinds of topics. Jones and Sinclair examined this corpus to provide precise definitions for the concepts *lexical item* and *significant collocation*. They also compared the behavior of certain articles, deictics, pronouns, and prepositions with more fully lexical items to distinguish grammatical from lexical patterns of collocation.

There were several findings obtained from their analysis. There were much more collocates which were position-dependent collocations than position free collocations. In other words, position-dependence is an important element in collocational behavior. The position-dependent collocations are characteristic of grammatical items such as pronouns and prepositions, the position of high frequency grammatical words can be easily predicted and the power is limited to the ability to attract particular word classes at particular span positions. Furthermore, personal pronouns and prepositions as nodes co-occurred significantly with grammatical items such as prepositions and pronouns. In contrast, verbs showed a tendency to collocate with grammatical items (e.g. *prepositions*) to form phrasal verbs. The tendency between lexical items collocating with each other was that adverbs preceded adjectives and nouns followed them. Moreover, the significance of a collocation depends on the overall frequency of the items concerned, the number of times they occur together, and the length of text. Finally, collocation is regarded as an important organizing principle that

exercises an influence on the construction and interpretation of utterances. The conclusion reached by Jones and Sinclair was that the data provided evidence of lexical organization.

In Sinclair's continued computational studies in lexis, he explains the way in which meaning arises from language text in two different principles: *the open choice principle* and *the idiom principle* (1987, 1991). The first principle, *the open choice principle* is a way of seeing text as a result of a very large number of complex open choices and restricted grammars. This principle is a normal way of seeing and describing language and deals with progressive choices of any words which satisfy the restraint of grammaticalness (1987, pp. 319-320). The other principle, *the idiom principle*, is a way of seeing text in which words do not occur randomly and *the open choice principle* has no effect. According to this principle, "a language user has available to him or her a large number of semi-preconstructed phrases that constitute a single choice even though they might appear to be analyzable into segments" (1987, p. 320). Sinclair suggests that the first mode to be applied to normal texts by language users is the idiom principle as it enables them to interpret most of the texts. This nature of the idiom principle has been widely used as a justification for the study of chunks, according to Nation (2001, p. 324).

Based on these two frameworks, Sinclair considers the role of collocation. He defines collocation as word combinations which illustrate the idiom principle and appear to be chosen in pairs or groups, not necessarily adjacent. In the determination of items collocating with each other in this model, he regards *frequency* as the only criterion and it is also the determiner of the importance of an item in relation to its collocates as follows (1987):

> When two words of different frequencies collocate significantly, the collocation has a different value in the description of each of the two words. If word A is twice as frequent as word B, then each time they occur together has twice the importance for B than it does for A. This is because that particular event accounts for twice the proportion of B than of A. (p. 325)

Based on this key concept, *frequency*, he focuses on only the lexical co-occurrence of words which is a major source of difficulty for learners of English and edits the *Collins COBUILD English Collocations on CD-ROM* in reference to data extracted from the Birmingham-based Bank of English (see Lexicographic Studies).

Kjellmer (1984), whose interest is both computational study and lexicographic study, focuses on a discussion of the distinctiveness of collocation and how it could be measured. His perspective that we do not only necessarily depend on frequency in collocation studies is found in his mention that "if frequency alone were to be our guide in extracting collocational material from the corpus, it is clear that that material would be of a very heterogeneous nature" (1982, p. 25). He defines collocation as "lexically determined and grammatically restricted sequences of words" (1983, p. 163). *Lexically determined* means that in order to be considered as a collocation, a word sequence should recur a certain number of times in the corpus. *Grammatically restricted* means that the sequence should also be grammatically well formed. Based on these criteria, *try to*, *hall to* and *green ideas* all occur in the corpus, but only *try to* is regarded as a collocation, because *green ideas* occurs only in the Brown Corpus and *hall to* is not a grammatically well-formed sequence. Thus, the joint application of these two

conditions is necessary to specify collocation, against Sinclair (1987) who argues that frequency is the only criterion to determine collocations.

The distinctiveness of collocations, which is one quality of collocations, is a matter of degree rather than an all-or-nothing feature. Kjellmer (1984, pp. 165-171) suggests that the following six criteria should be used to measure the degree of collocational distinctiveness.

(a) Absolute frequency of occurrence. The more frequent the collocation is, the more distinctive it is likely to be. This criterion has been used by many authors.

(b) Relative frequency of occurrence. The more frequent a sequence is in relation to its *expected* frequency of occurrence, the more distinctive it is likely to be. The combinations that do occur will mostly occur more frequently than we have reason to expect them to on solely statistical grounds.

(c) Length of sequence. The longer a recurring sequence is, the more distinctive it is likely to be. For example, the collocation *figured prominently in* seems more distinctive than *figure in*. This sequence length is incorporated into the *cost criterion* of Kita et al. (1994).

(d) Distribution of the sequence over texts. The more texts a sequence is distributed over, the more distinctive it is likely to be. This criterion may be evaluated using the measures of diversity.

(e) Distribution of sequence over text categories. The more text categories a sequence is distributed over, the more distinctive it is likely to be. High frequency in several texts within one text category may denote technical language, special jargon, and the like.

(f) Structure of sequence. The more structurally complex a sequence is, the more distinctive it is likely to be.

Kjellmer (1987, p. 133) is also interested in the distribution of collocations among different text types and examined the nature of English collocations occurring in the Brown Corpus, which comprises one million words taken from American English texts since 1961 (1994, p. x). There are mainly three findings from this data analysis. First, collocations are necessary and commonly appearing elements of any English text. Second, collocations occur in an informative text rather than in an imaginative text. Finally, long collocations, which consist of five words or more (e.g. *in the field of higher education*), occur in the more formal genres of the Brown corpus which aim to communicate successfully rather than to be creative.

In his later study, Kjellmer (1990) analyzes the Brown corpus and the Gothenburg corpus, a sub-corpus of Brown, to answer the following two questions: "Are some types of words more likely than others to occur in collocations?" and "Is it possible to find a common denominator in collocational tag-classes?" The main finding is that words differ very markedly in their tendency to cluster. Singular nouns and the base form of verbs are highly collocational while adjectives and adverbs are not. Predominately, some functional or contextual restriction of the type is a key factor which decides whether a type of word shows this tendency to cluster.

Smadja's (1993) main concern is the automatic acquisition of collocations which have particular statistical distributions. He developed a statistical tool, *XTRACT*, which retrieves and identifies collocations from large textual corpora. In his introduction (p. 399), he explains two kinds of collocations:

flexible collocations in which the words can be inflected, the word order may vary and the words can be separated by an arbitrary number of other words; and compound collocations which involve two or more words used in a very rigid way. These collocations have two basic points. One is that collocations are extensive and in the story every sentence contains at least one collocation. The other is that collocations are idiomatic constructs, which are difficult to predict and thus necessitate specific lexical knowledge. This latter point causes a major problem for learners as well as for various machine applications such as language generation or machine translation.

To retrieve and identify such problematic collocations from corpora, *XTRACT* works in the following three stages. The first is a data gathering and result analyzing stage to produce statistical lexical information and to analyze this information to retrieve paired collocations involved in a syntactic relation in texts by a statistical technique. The second is producing collocations involving more than two words (n-word collocations) in a much simpler way than other related methods. These collocations can involve closed class words (e.g. particles and prepositions). To do this, *XTRACT* examines all the sentences which contain them in order to analyze the distributions of words and parts of speech in the surrounding positions. The application stage is final, in which parsing and statistical methodologies are combined to identify the proper syntactic relation between the two words. A secondary effect of the third stage is to refine plenty of candidate collocations as irrelevant and thus produce higher quality output. He concludes that in this way, higher quality collocations can be obtained and even if the number and size of available textual corpora are rapidly growing, it would be useful to assist in implementing natural language processing as well as to help

lexicographers compile corpus-based dictionaries.

In his later study, Smadja, McKeown and Hatzinvassiloglou (1996), he develops a software program, *Champollion,* for translating collocations. This *Champollion* enables us to automatically produce the translations, with a pair of parallel corpora in two different languages and a list of collocations in one of them. This statistical tool is designed to be applied to compile bilingual lexical information for different domains. They write that providing translations for collocations is a worthwhile attempting because collocations are opaque constructions and domain dependent, and the correspondences between collocations in two languages are still unexplored. They try to compile translations for the domain-specific collocations by applying *Champollion* to a corpus in a new domain.

The result of testing *Champollion* on three separate years of the Hansards Corpus yielded the French translations of 300 collocations, 73% accuracy on average can be obtained with the best case, 78%. This result is fairly good, compared with that of other full machine translation systems.

Like Smadja (1993), Biber (1993) is also interested in the development of a software tool to extract collocations automatically. He presents the use of factor analysis as a tool for the automatic extraction of collocations. Factor analysis aims at identifying groupings of collocations from the input data, which is information computed over the domain of the individual text. It follows the next three steps (Biber, 1993, pp. 532-533): (a) identifying the major collocational patterns for some target words, (b) counting the frequency of each collocation pair in each text of the corpus and (c) identifying the groupings of collocational pairs that tended to co-occur in the text.

The two pilot analyses in which Biber exemplified the use of factor analysis with the words *certain* and *right* showed that it was very useful as a tool for the automatic identification of the main word senses and uses, and that it could also help in compiling dictionaries.

Renouf and Sinclair (1991), and Noel (1992) are interested in collocations from their own angles, which are different from Sinclair (1966) and Berry-Rogghe (1973). Renouf and Sinclair (1991, p. 128) have investigated collocations using certain frameworks, which consist of a discontinuous sequence of two high-frequency grammatical words positioned at a one word span from each other. The reason why they focused on grammatical words is that combinations of grammatical words occur more often than those of lexical words: therefore, it would appear justifiable to examine their patterning in terms of the phenomenon. In order to analyze the Birmingham Collection of English Text, which consists of a spoken British English text and a written British English text, Renouf and Sinclair chose seven frameworks which were made up of different pairings of high-frequency grammatical words: *a+?+of, an+?+of, be+?+to, too+?+to, for+?+of, had+?+of* and *many+?+of*. The result of this study indicated that the frameworks were highly selective of their collocations and the different frameworks had different degrees of productivity (1991, p. 130). They also pointed out that the choice of word class and collocation was governed by constituents in the framework and that a high type-token ratio could be a clear indication that the frameworks were statistically significant (1991, p. 143).

Noel (1992) is concerned with the investigation of collocation in bilingual texts and corpora, especially in the context of theoretical studies on translation and machine translation. His aim is to improve a computerized

procedure for compiling bilingual dictionaries for French speakers of English based on collocation data from Buro voor Systeemontwikkeling, correcting some of the disadvantages of most existing monolingual dictionaries. He took three steps in completing the compilation of bilingual texts for collocations: (a) transforming bilingual test into parallel text, (b) identifying English collocations and (c) searching bilingual texts for collocations.

In summary, researchers in computational studies rely on computer technology and statistics to objectively study collocations in a certain environment in which the items composing collocations occur. They have used computer techniques to measure the distinctiveness of collocation, extract collocation automatically, develop specific programs and techniques of analysis to do further collocation studies and create corpus-based dictionaries. They have been developed on the basis of the definition and concept of collocation and some technical terms such as norm and collocate by Sinclair (1966) and Berry-Rogghe (1973).

Frequency, which is regarded as an absolute criterion in the computational domain, has exerted an great influence on collocation study in other study domains because new objective facts about English collocations, i.e. how collocations are actually used can be shown without relying on native speakers' intuition. However, some researchers such as Gavioli & Aston (2003) and Kjellmer (1984) point out that we should not rely much on frequency in collocation studies because it is one of the features which collocations contain and it is obtained in the corpora, which are too small to reflect the average adult user's experience of the language.

2.3.4. Lexicographic studies

This section discusses lexicographers' questions of collocations in a dictionary: Should collocations be regarded as separate dictionary entries? If so, which collocations and how many should be dealt with in the restricted space of a dictionary?

Modern general purpose dictionaries are giving more and more attention to collocation and contain many collocations in them. For example, the *Oxford Advanced Learner's Dictionary* (*OALD* sixth edition, 2000) contains 10,000 collocations while its fifth edition contains no more than 4,000. Furthermore, it provides study pages in which the definition and the type of collocations are shown, and explains how to check collocations so that learners can understand collocations better. *The Longman Dictionary of Contemporary English* (*LDOCE*, 2001) presents collocations in the order frequency in reference to the frequency of collocations in the Longman Corpus Network and the Longman Spoken Language Corpus. The *Collins COBUILD English Dictionary* (*COBUILD* second edition, 1995) and the *Cambridge International Dictionary of English* (*CIDE* first edition, 1995) also present many collocations, which are emphasized in bold face.

However, a couple of important problems arise in such dictionaries in terms of the treatment of collocation — insufficient information on collocations and inconsistent presentation of collocations. As for the former, the *Oxford Collocations Dictionary for Students of English* (2002, p. viii) points out that as modern dictionaries have an inclination to be hindered by trying to cover as much information as possible about any word (*registers, word patterns, grammatical information* and so on) besides its collocations, collocational information is still not enough for learners. Regarding the

latter, Cowie (1981, pp. 223-224) criticizes the inconsistent presentation of collocations, exemplifying *wage freeze* as a main entry in the *Longman Dictionary of Contemporary English* (1978), while it is one of the examples at *wage 1* in the *OALD* 3rd edition (1974). He suggests that more collocations should be introduced in the general pedagogical dictionaries as lexicographers take into account the learner's use of dictionaries with a reference purpose in the decoding process in spite of the limited space of dictionaries. In order to overcome these problems, some dictionaries have been compiled, especially focusing on collocations.

The interest of Mackin (1978) is what kind of collocations should be included in a dictionary. He suggests that collocations should be placed on a scale of *probability* (1978, p. 164) and that three main sources should be used in compiling a collocation dictionary: (a) other dictionaries, (b) the lexicographer's competence, and (c) occurrences which are met in spoken and written English such as newspapers and radio and television conversations. All of them are used in compiling the *Oxford Dictionary of Current Idiomatic English* (*ODCIE*).

In the *ODCIE*, Cowie, Mackin and McCaig (1983) present a wide range of collocations. The dictionary has a consistent classificatory system in which both the external relationship between collocations and grammatical patterns and the internal arrangement, such as belonging to different word classes, different subclasses of noun (e.g. *common, abstract, proper*) etc., of lists of collocates are made clear by using some abbreviations and symbols in the entries (1983, pp. xliii-xlix). The dictionary presents open sets, to which other words can be added by the user, and restricted sets, which include all the possibilities of choice of collocates, and it marks the latter form with a

special symbol (1983, pp. xiv-xv). In spite of the fact that this dictionary covers a wide range of collocations, the name of the dictionary is confusing. Learners might not use the dictionary to look up a collocation unless they know it explains collocations as well as idioms used in current English.

Mackin (1978) also mentions collocation studies from the pedagogical point of view. He claims that whether an association of words belongs to collocations or not is based on native speakers' intuition. Therefore, second or foreign language learners have no way in which they can produce new acceptable combinations of words, let alone be taught all the collocations, because "collocations are in any case so numerous as to rule out any methodical teaching or acquisition of them" (1978, p. 151). His suggestion is that learners can acquire some degree of collocational competence in "years of study, reading and observation of the language" (1978: 151-152) and that dictionaries should play an important role in order to support learners.

Cowie (1978) focuses on collocations in editing a learner's dictionary. He discusses the treatment of collocations in dictionaries by giving some examples (e.g. *block all roads/lanes/alleys/streets* and *check a bill/sb's statements/these figures.*) from the *ODCIE vol. 1*.

First, he defines collocation as "the co-occurrence of two or more lexical items as realizations of structural elements within a given syntactic pattern" (1978, p. 132) and second, he emphasizes the importance of the range of words in order to distinguish open combinations and restricted combinations. He claims that openness and restrictedness of co-occurrence of words are related to the range of other items with which they can combine and can be represented as "the end-points of a scale or continuum; various major types of collocation can be identified, and can conveniently be related to parts of

this scale" (1978, p. 133). He also mentions that restricted collocations, especially *idiomatic* collocations, are difficult for second or foreign language learners to acquire, because of the unique and opaque meaning created by combining constituents of words.

Finally, Cowie discusses the lexicographic view, which is his most interesting point: how to present lexical patterns in a learner's dictionary. He makes four important recommendations (1978, pp. 135-136) as described below:

1. Lexicographers who want to display collocational potential from example sentences can do so in three possible ways. One is by expressing words with semantic features. For example, *father, foreman* and *officer* have the same semantic features: [+human, +male, +adult, +authority]. The second is by specifying one general word: *superior* can be related to terms, *boss, leader* and *patron*. The final way, which he thinks is the most effective, is by "listing a judicious selection of such particular items as representative (and suggestive) of the total range of choice" (1978, p. 135). The reason why he recommends the last way is that it can reduce learners' burden in learning language by presenting them with a sub-set of particular items.

2. If the collocational range of a headword includes nouns which have different semantic sub-classes, it should be mentioned to learners explicitly by using a semicolon to make clear the words' special possibilities and restrictions of co-occurrence.

3. Some possible combinations with items many native speakers tend to choose should be displayed in dictionaries. For example, *voice* and *accent* collocate with *put on*; however, *it, act, airs* are higher choices to be combined with these words. The simplest way of indicating such preferences is to put them first in entry of headwords.

4. A small set of items which collocates with another in a specialized sense should be highlighted by using a special sign.

Cowie's concern is the study of collocations not only in dictionaries but also in journalistic prose. Cowie (1992) examines the use of the multiword lexical units in newspaper writing: "Gorbachev's new revolution" from Mary Dejewsky and *The Times* on June 29th, 1988. His study provides evidence that in newspaper articles the number of creative word combinations and idioms tends to be very small, while verb-noun *restricted collocations* which are already well-established and widely known are extensively used. As a pedagogical implication, Cowie argues that as restricted collocations play an important role in text, they should be intensively taught to learners of English.

A more synthetic definition of collocations has been provided by Benson et al. (1997), comparing them with free combinations and idioms, all of which belong to lexical combinations. They claim that these three groups exhibit various degrees of cohesiveness, on the basis of which they can be distinguished and explain the difference by using an example, *commit murder* (1997, p. xxx). *Commit murder* is not an idiom, because the meaning of the whole reflects the meaning of the constituents and *commit* is limited in

use to a few nouns, meaning *crime* and *wrongdoing*[3]. Moreover, this word combination is also different from free combinations in two ways. First, *perpetrate* seems to be the only synonym of the verb which can replace *commit*. Second, and more importantly, the combination *commit murder* is used more frequently. The points they regard as important in defining collocations are frequency, the range of each word, and collocational restriction with other words by comparison of two other combinations.

Based on the above definition of collocation, Benson et al. (1997) divide collocations into two categories: grammatical collocations and lexical collocations. The former consists of a dominant word such as noun, adjective, and verb and a preposition or a grammatical construction. The latter, on the other hand, does not contain any preposition or grammatical construction. Each categorization has been divided into sub-categorization as follows (1997, pp. xv-xxxiii):

Table 6. Grammatical collocations by Benson et al. (1997, pp. xv-xxxiii)

	Combination	Example
G1	noun + preposition	*blockade against, apathy towards*
G2	noun + to infinitive	*It was a pleasure to do it.*
G3	noun + that clause	*He took an oath that he would do his duty.*
G4	preposition + noun	*by accident, in advance*
G5	adjective + preposition	*be angry at, be fond of*
G6	predicate adjective + to infinitive	*It was necessary to work.*
G7	adjective + that clause	*It was nice that he was able to come home for the holidays.*
G8	consists of 19 English verbs	*send* (the dative movement transformation verb)

[3] As *commit* collocates with not only nouns with negative meanings (*crime* and *wrongdoing*) but also ones with positive meanings (*money* [for example, *The council has committed large amounts of money to housing projects.*]), this argument of Benson et al.' s is a little bit too strong.

Table 7. Lexical collocations by Benson et al. (1997, pp. xv-xxxiii)

	Combination	Example
L1	verb + noun	*compose music, wind a watch*
L2	verb + noun (eradication and/or nullification and a noun)	*reject an appeal, reverse a decision*
L3	adjective + noun	*strong tea, a sweeping generalization*
L4	noun + verb	*bees buzz, bombs explode*
L5	noun + noun	*a bit of advice, a pack of dogs*
L6	adverb + adjective	*deeply absorbed, strictly accurate*
L7	verb + adverb	*affect deeply, amuse thoroughly*

From the pedagogical point of view, they emphasize the importance of the collocation acquisition in order for second or foreign language learners to achieve active mastery of English.

Although Benson et al.'s definition of collocations is more synthetic than previous researchers', Gramley and Pätzold (1992, pp. 64-65) point out that boundary between collocations and free combinations is not clear in *the BBI Dictionary of English Word Combinations*. Their critique is that while in the introduction of the dictionary it is mentioned that free lexical combinations are excluded, free combinations such as combinations of *woman* and common adjectives *fat*, *old*, *short* and *tall* are listed. Thus, Benson et al.'s distinction between collocations and free combinations is vague and therefore Gramley and Pätzold suggest that empirical research based on corpora is necessary to make the boundary clear.

Hill and Lewis (1999) have compiled *the Dictionary of Selected Collocations (DOSC)* based on Lexical Approach (1993) advocated by them (see the following section). They argue in the approach that as a chunk, especially collocation, is a central component in language, learners should try to develop their larger mental lexicon by paying attention to collocations from the early stages. To promote their Lexical Approach, they select

collocations based on the frequency of the combinations, which is one of the important features for collocations (1999, p. 7).

The main interesting feature of the *DOSC* is that in compiling this dictionary, collocations are selected for intermediate or advanced learners who have had some degree of prior semantic knowledge about collocations to enable them to write, translate or speak English by using the words they have already known. On its cover, the *DOSC* states that it offers 55,000 collocations under 3,200 essential headwords to help learners make more natural, and hence better, use of words already partially known. Excluded are those collocations which, they write, are too common, too technical, too colloquial, or too difficult for learners to use; it includes those which have a strong relation, the strength of judgment resting on their expertise and their native speaker intuition.

Since the middle of the 1990s computer-assisted collocation dictionaries such as *A Dictionary of English Collocations, Collins COBUILD English Collocations on CD-ROM* (1995) and *Oxford Collocations Dictionary for Students of English* (2002) have been published.

Kjellmer (1994) has compiled a collocational dictionary: *A Dictionary of English Collocations* by using the Brown Corpus, which consists of one million words taken from representative samples of writings published in 1961 (1994, p. x). His work is based on two criteria for collocations, which he defines as "such recurring sequences of items as are grammatically well formed" (1994, p. xiv). One criterion is frequency of co-occurrence of certain words and the other is categorization of collocations. The former criterion is whether a sequence of two or more words has to co-occur more than once in the corpus in order to be accepted as a collocation. In discussing this, he

makes the comment that the co-occurrence of words varies in both spoken and written English, and high frequency word combinations should be listed in the dictionary. The latter criterion is that collocations should belong to one of 19 categories taken from Allen et al. (1975, cited in Kjellmer 1994, p.xxii) on a Swedish corpus, but the 19 categories are not divided into two groups, lexical collocations and grammatical collocations like Benson et al. (1997). The 19 categorization of collocations is shown in Table 8 (1994, pp. xxiii-xxix).

Table 8. 19 categorization of collocations by Kjellmer (1994, pp. xxiii-xxix)

	Combination	Example
1	noun phrase	*the big question, evening service*
2	nominal head + a related structure word	*way out, day off*
3	verb + object	*loved him, receive attention*
4	verb + related structure word(s)	*partakes of, paid for by*
5	verb + verb(s)	*will come, let go*
6	to + infinitive	*to be, to examine*
7	verb + its predicate	*was cold, made better*
8	adverbial + subordinating conjunction	*very young, extremely well*
9	adverb + subordinating conjunction	*now that, even though*
10	conjunction + adverb	*or else, and yet*
11	preposition + subordinating conjunction	*except that, in that*
12	adverb or preposition + preposition	*out from, from under*
13	full finite clause optionally followed by related structure word	*he said, when he was shot*
14	it- or there- construction + related structure word	*it is impossible to, it was obvious that*
15	noun-finite or verbless clause	*hands off, back straight*
16	as or like + NP or adverb	*as always, like myself*
17	interjections, exclamations, vocativistic expressions	*hey there, well now*
18	co-ordinated elements	*openly and honestly, actual or potential*
19	non-English expressions	*status quo, ad infinitum*

Such a classification scheme used in *A Dictionary of English Collocations* (1994) as well as *the BBI Dictionary of English Word Combinations* (1997)

might be useful for reference purposes, but it seems to reduce vocabulary items and grammatical structures occurring in the natural language to collocations, according to Elyildirm (1997, p. 40). He is afraid that classifying collocations into some categories distorts natural language as if it were composed only of units of collocations, because there is no evidence showing that "native speakers of English completely rely on collocations in language production" (p. 40).

The *Collins COBUILD English Collocations on CD-ROM* (1995) is an electric collocation dictionary containing about 140,000 node/collocate pairs and 2.6 million different examples. They are all taken from the Bank of English, which consists of 320 million spoken and written British English (about 70%), American English (about 25%) and other native varieties of English (about 5%) from various sources such as newspapers, magazines, and radio broadcasts. The node of collocations was selected by computer based on the frequency and distribution in the Bank of English, omitting too technical terms, and the examples of combinations were selected at random from the Bank of English. Therefore, some unusual examples are found in it.

This electric dictionary can be easily accessed to check occurrences of high-frequency collocations, but the problem is that only 20 examples of combinations can be seen. In other words, only high-frequency collocations can be accessed, and low-frequency collocations cannot be seen. Thus, the presentation of collocations in the *Collins COBUILD English Collocations on CD-ROM* is very limited.

The *Oxford Collocations Dictionary for Students of English* (2002) is also a corpus-based collocation dictionary in which 150,000 collocations of 9,000 headwords (nouns), verbs and adjectives and over 50,000 examples of the

collocations in context that occurred in the about 100 million word British National Corpus (BNC) are provided (see section 5.3.1.). The compilers define collocations as "the way words combine in a language to produce natural-sounding speech and writing." They consider medium-strong collocations (e.g. *see a doctor,* and *direct equivalent)* as more important than fairly weak collocations (e.g. *see a film* and *an enjoyable holiday*) and the strongest and most restricted collocations (e.g. *see reason* and *burning ambition*) (p. viii). They argue that medium-strong collocations are vital to communicative competence in English because they will make learners' speech and writing sound much more natural, even when basic intelligibility does not seem to be at issue. Therefore, medium-strong collocations are especially focused on for learners, although it covers the full range of collocations in this dictionary.

From the pedagogical point of view, learners aim to build up their own collocational competence on a *need-to-know* basis, starting from the words they already know (p. viii), because "choosing the right collocation will make his speech and writing sound much more natural, more native speaker-like, even when basic intelligibility does not seem to be at issue" (p. vii).

In lexicographic studies, researchers have been discussing some questions of collocations in a dictionary: Should collocations be regarded as separate dictionary entries? If so, which collocations and how many should be dealt with in the restricted space of a dictionary? General purpose English dictionaries have had a tendency to give as much collocational information as possible, but they have to provide other information such as grammatical information about the word. They also seem to have had no consensus on important collocations. In order to overcome the shortcomings of general

purpose dictionaries, collocation dictionaries including electric versions have been edited based on high-frequency collocations extracted from large corpora and development by computer technology.

2.3.5. Pedagogical studies

This section refers to researchers who advocate the necessity of the implementation of teaching collocations, apply Lexical Approach, and emphasize the more methodological way to teach collocations in the classroom—i.e., how should collocations be taught in the classroom?

Lewis (1993) and other linguists advocate Lexical Approach in which they focus on multi-word prefabricated chunks and better teaching methodology of them. It is completely different from the previous standard view that language consists of grammar (structure) and vocabulary (words), and stands by the new principle that language consists of chunks which produce continuous coherent text and store much of our mental lexicon.

Lexical Approach regards communication of meaning as the heart of language and language learning, which leads to an emphasis on vocabulary. The essential idea to support it is that fluency is based on the acquisition of a large store of prefabricated combinations, which are available as "foundation for any linguistic novelty or creativity" (Lewis, 1993, p. 15). Grammatical knowledge is also permitted as important, but it cannot begin to be helpful in that role until learners have a sufficiently large mental lexicon to which grammatical knowledge can be applied. Lexical Approach can be summarized as follows:

In Lexical Approach, more attention is paid to:

- Lexis－different kinds of multi-word chunks
- specific language areas not previously standard in many EFL texts
- listening (at lower levels) and reading (at higher levels)
- activities based on L1/L2 comparisons and translation
- the use of the dictionary as a resource for active learning
- probable rather than possible English
- organizing learners' notebooks to reveal patterns and aid retrieval
- the language which learners may meet outside the classroom
- preparing learners to get maximum benefit text

In Lexical Approach, less attention is paid to:

- sentence grammar－single sentence gap-fill and transformation practices
- uncollocated nouns
- indiscriminate recording of *new words*
- talking in L2 just for the sake of it to claim to use a communicative approach

(Lewis, 2002, p. 15)

Chunks consist of single words while all the others are multi-word items: collocations, fixed expressions and semi-fixed expressions, but the centrality is collocation. He defines collocation as combinations of words which occur naturally in the used language, rather than combinations which *ought* to exist (p. 26). Frequency is one of the norms to define collocations, but it alone does not reveal quality. It is because low-frequency collocations may be strong collocations and high-frequency collocations may be loosely bound. First priority should be strong and frequent collocations, subordinating loosely-bound and frequent collocations, as well as strong and low-frequent collocations. The last priority should be loosely-bound and low-frequent collocations. Thus, he claims that not only frequency but strength which shows the degree of boundary between nodes and collocates should be taken into consideration.

As a pedagogical point of view, he points out the importance of the teachers' role to present important collocations in the classroom in the

following two ways. First, teachers, using Lexical Approach, instead of analyzing language whenever possible, should be more ready to direct learners' attention to chunks which are as large as possible. Words do not normally exist alone and it makes sense to learn them in a strong, frequent and typical pattern of actual use. Second, it is more efficient to learn the whole and break it into parts than to learn the whole as an extra arbitrary item. In this way, raising learners' awareness of collocations and encouraging them to explore them is a very efficient way to facilitate learners to make better use of language they have already known at a word level.

As for the suggestion that learners' attention should be consciously drawn to collocations in order to develop their lexicon, Lewis (2002) proposes that first, learners should take in large quantities of listening which is largely comprehensible and then, take in similar quantities of comprehensive reading. Thus, he confidently advocates learners' listening and reading as much as possible to make learners develop their lexicons. In the process, helpful effects from L1 can be made best use of, because in Lexical Approach the effects of L1 are both helpful and unhelpful, so negative transfer should be avoided and positive transfer should be made good use of for learners' acquisition.

In order to convert his pedagogical suggestions to concrete practice, a vocabulary notebook and collocation exercises are proposed by Lewis as useful learning aids for learners. This is because whenever learners encounter new words and known words again, they should be recorded and activated with high-frequency and strong collocates together, in order to keep them in long-term memory. Collocation boxes and collocation cascades

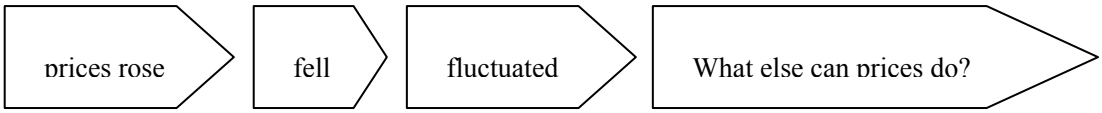
are exemplified. First, collocation boxes are very productive to record collocations occurring by theme, chapter, unit and so on. The following is a concrete example:

five verbs	+ noun
dismiss	objection
express	
meet	
raise	
withdraw	

(Lewis, 2002, pp. 78-81)

The point is that (a) not a long list but five collocates with the head is probably best, (b) collocates should be strong and frequent, (c) collocates should be new as partners of the headword, even though learners perhaps knew the individual words before, and (d) collocates should be useful to the individual learner's specific needs and interests (Lewis, 2003, p. 80).

The second proposal by Lewis (2002) is a collocation cascade. It is useful in building collocations systematically in a specialized area. The best sequence is usually key noun and collocating verb and learners will move from collocate to collocate. Formats need to be either preprinted or drawn by learners and the sequential collocates can induce learners' collocational acquisition. The concrete example is as follows:



(Lewis, 2002, p. 84)

Considering collocation exercises, identifying chunks, matching parts of collocations, completing the missing pair of words, categorizing and sequencing collocations, and deleting improper pairs are introduced. Teachers should carefully select different types of exercises to meet various learner levels, time used in the class and so on.

Woolard (2000), one of the advocates of Lexical Approach, defines collocations as "words which are statistically much more likely to appear together than random chance suggests" (p. 29). From the pedagogical point of view, he proposes that the term, collocation, should be used to relations between content words only, because it provides a very clear definition for his students.

He recommends his students to record collocations based on the definition mentioned above on their notebook as well as does Lewis (2002) in order to recognize them, encounter them subsequently, and rehearse them productively. His proposed format includes not only headwords, collocates, examples but also word grammar which should be learned with key words unlike traditional grammar teaching. This is because his learners face difficulty using prepositions in producing sentences with key collocations. He claims that it is more useful and that subsequent encounters would obviously enrich students' knowledge of collocations with the prepositional patterns. An example of the format for a learner's notebook entry is at the top of the next page.

He mentions that in the notebook a little extra space should be prepared to add extra information and revise it in the light of the learners' increased exposure to the language and collocation dictionaries.

CRITICISM
(pronunciation + translation)
to express disapproval of something or somebody
The government has received a lot of criticism for increasing taxes.
V: receive, come in for…
A: heavy, severe, fierce…
G: …criticism for raising taxes
…criticism for its plan (to build…)
…criticism over the decision (to spend…)
F: …come under heavy criticism for not providing…
The same criticism has been leveled at…

(Woolard, 2000, p. 45)

Conzett (2000) claims that collocations whose items appear in the middle of a continuum from strong to weak in conceptualizing collocations should be targeted, and offers several teaching suggestions and testing exercises. The first suggestion is to let students be aware of the concept, *collocation,* and have them consciously learn many collocations. The second is to select books that include many collocations. She proposes to check teacher intuition by corpus-based references so that they will feel confident in supplying high-frequency collocations. The third is to present collocations in certain contexts. The fourth is to add questions from time to time during the class to fix learning collocations in the learners' memories. The fifth is to select vocabulary textbooks according to the learners' specific purposes. She adds collocation grids and completing collocation tasks as effective ways to review and practice, which is crucial to retention. This is based on previous research that learners need to encounter a new word five times to seven times to keep it in their memory (Crothers & Suppers, 1967; Kachroo, 1962; Rod, 1999; Salling, 1959). The sixth is to train learners to observe and note as many collocations as possible through reading and gradually shift their activity from reading to writing by reinforcing them in writing assignments.

After these suggestions, she introduces some testing exercises to help learners retain the memory of the collocations such as collocation grid, additions to tests for vocabulary-builder textbooks, backwards vocabulary tests, producing example sentences, and collocations dominoes. As for additions to test for vocabulary-builder textbooks, she points out that different collocation tests should be prepared according to different purposes. For example, matching columns of collocations is appropriate for all levels, while more active tasks, productive collocational tests such as asking learners to supply collocations are appropriate to stimulate learners' collocational knowledge. Backwards vocabulary tests are valuable in helping learners retain their reading vocabulary. A list of collocations can be collected for different thematic or content-based units in a reading class and learners should answer the proper collocations for a set of definitions prepared by teachers. Collocation dominoes are a very enjoyable task, in which teams or pairs of learners are given sets of cards, each of which contains one part of a useful collocation and they match the two parts. Learners will enjoy this game-like activity without any stress.

Hill (2000), who is an editor of *the DOSC* with Lewis, recommends exploiting a text and using a collocation dictionary to record collocations in learners' notebooks and preparing their essays with Morgan Lewis and Michael Lewis as well, but he contributes to the clarification of reasons why collocations are important from a pedagogical point of view in a large part of his paper. The following nine are important for teachers: (a) non-arbitrary lexicon, (b) predictability, (c) size of the phrasal mental lexicon, (d) role of memory, (e) fluency, (f) complex ideas with lexical expressions, (g) making thinking easier, (h) integral pronunciation, and (i) recognizing chunks for

acquisition. Some of them overlap with other Lexical Approach advocates, but he especially emphasizes collocations in terms of the role of memory. He points out that chunks make up a huge percentage of all naturally-occurring texts, spoken or written in our mental lexicon, which proves to be much larger than previously thought and in fact, native speakers have a large store of these chunks in their minds that they are ready to use when required. In order to develop their mental lexicon that covers a large percentage of prefabricated expressions, learners should build up their memory and be exposed to as many chunks as possible from naturally used texts from the earliest stages. And then, they will be ready to produce examples fluently whenever required and make thinking and expressing easier with more chunks. In regard to the importance of collocational knowledge mentioned above, he highlighted the importance of the teachers' role to raise learners' attention to collocations in the classroom.

Hill also recommended that using chunking is a good way and deserves to be etched into all learner's memories as do other Lexical Approach advocates, but he highlights the fact that learners have heavy burden to bear, because the combination of words is tremendously enormous. To lessen their burden, Hoey (2000) makes three suggestions. The first is about collocation word lists which are useful for learners to build up for themselves. To do so, learners should create a set of concordancing *software* that enables them to expose themselves to as much naturally occurring language as they are capable of processing and find regularities and recurrent features from it. Moreover, if the learner has access to computer concordances, it would be much better, but even if not, any text would give him/her much collocational information. Second, it is semantic prosody which is defined as what occurs when a word

associates with a particular set of meaning. It is a kind of generalization based upon the collocates a word has. For example, if a learner wants to learn *chilly*, he/she would do best to learn that it occurs in certain kinds of context rather than all contexts, because *chilly* is more likely to be associated with *unit of time* than *watery things* or *ill people*. Thus, it is no longer necessary to learn as many collocations as possible and instead learn the word combination with an absolutely typical representatives of semantic prosody. Third, it is colligation which is defined as "the grammatical company a word keeps and the positions it prefers" (p. 234). While semantic prosody is closely associated with the meanings of words occurring in a certain context, colligation describes the appropriate position of words in its grammatical context. For example, words which belong to *employment* such as *actor*, *architect* and *carpenter* are all expected to take definite and indefinite articles, possessives, classifiers, and apposition, but they differ grammatically amongst themselves. The word *carpenter* is more likely to occur with a classifier (*a wages accountant*) than any other items.

After focusing on the three factors to lessen learners' burden in the acquisition of vocabulary, Hoey introduces two approaches to intensify the learner's encounters with words. The first one is to use a text to produce a manual concordance. A group of words which occurred commonly in the text are taken and they can be presented to learners as an activity in which they would go through the text looking for one or more of these key words and learn the combinations with the key words in the context. The other approach is to have students search for words that are combined together and look for other sentences with the same group of words in them. In this approach, learners will encounter word combinations several times in

different contexts and automatically recognize the semantic prosody and colligations of the words. The point of these approaches is that learners should learn the meaning of words in the different environments they occur in.

Hoey (2000), a descriptive linguist, did not introduce practical methodology such as recording collocations and giving activities on collocations, but he introduces a vocabulary textbook which offers the learner advice that is thought to be extremely sensible. That is *English Vocabulary in Use* (2nd ed.) by McCarthy and O'Dell (2001). This is the new edition which revised the first edition published in 1994 so that a number of new words and expressions might be brought into every day use by accessing the Cambridge International Corpus. Before vocabulary exercises, they devote the first of several pages to explain how to learn vocabulary, organize a vocabulary notebook such as word-map and word-table, use a dictionary effectively, revise vocabulary by making the new words active, reactivating words and expressions that learners had forgotten or they are not sure about, guess meaning in the context, and some terminologies learners need to know. In short, learners should have basic knowledge of vocabulary and a basic strategy of effective learning of vocabulary. In the section of vocabulary learning (pp. 4-7) they highlight the importance of learning not words, but chunks to learners as follows:

What does knowing a new word mean?

・ It is not enough just to know the meaning (or meanings) of a word. You also need to know:

(a) which words it is usually associated with
(b) its grammatical characteristics
(c) how it is pronounced
(d) whether it is formal, informal or neutral

- Try to learn new words in phrases not in isolation
- Write down words that commonly go together. These are called collocations:
  Adjectives + nouns, e.g. rich vocabulary, classical music, common sense.
  Verbs + nouns, e.g. to express an opinion, to take sides.
  Nouns in phrases, e.g. in touch with, a train set, a sense of humour
  Words + prepositions, e.g. at a loss for words, thanks to you.
- Note special grammatical characteristics of new words. For example, note irregular verbs and uncountable nouns.
- Note any special pronunciation problems with new words
- Make a note if the word is particularly formal or informal in character, in other words if it has a particular register.

(McCarthy & O'Dell, 2001, p. 5)

In this way, they first mention the importance of learning new words in chunks, by using the special term *collocation* for learners.

In summary, researchers in pedagogical studies are interested in practical and educational aspect of collocation acquisition based on Lexical Approach that collocation is a central component in language. They argue that it is quite important to seek pedagogically effective practice to broaden learners' collocational knowledge from the early stages. Therefore, many ways of supporting learners are recommended, organizing their notebooks containing many collocations and preparing activities, reviews and exercises on collocations.

2.4. Importance of collocation

The importance of collocation is advocated by many linguists and researchers, as mentioned in each study in 2.3. This section briefly summarizes collocations in terms of the following three points, in reference to Nation (2001, pp. 317-328) and Gitsaki (1999, pp. 26-30).

1. ***Language knowledge is collocational knowledge.***

According to Ellis (2001), language knowledge and language use can be explained by the storage of chunks in long-term memory and the experience of how frequently chunks occur without the need to mention underlying rules. In other words, if not single words but chunks containing important words can be seen many times and they can be stored in long-term memory, language reception and language production are made more effective. This view is supported not only by Ellis (2001) but also by Lexical Approach proponents such as Lewis (1993, 2000) and Hill (2000). McCarthy (1984), Yorio (1980), Alexander (1984), Nattinger and DeCarrico (1992) and Korosadowicz-Struzynska (1980) also consider conventionalized language forms as important to develop learners' communicative competence. Ellis (2001) maintains that the direct instruction of collocations is important in language learning, but that most learning tends to take place through meaning-focused receptive and productive language use (Nation, 2001, p. 322)

2. ***All fluent and appropriate language use requires collocational knowledge.***

According to Pawley and Syder (1983), the explanation of how language users produce native-like sentences and use the language fluently can be offered by the hypothesis that they store a number of *lexicalized* or *institutionalized* sentence stems which range on a scale from completely fixed expressions through collocations producing useful basic chunks in addition to knowing the rules of the language. Language users can choose an appropriate way to say things from a large range of possible preconstructed

clauses (native-like selection) and can produce the appropriate language fluently (with native-like fluency). In order to do so, all collocational sequences are important and need to be encountered many times (Nation 2001, p. 324). Hill (2000) also takes a similar stand with Pawley and Syder (1983).

3. ***Many words are used in a limited set of collocations and knowing these is part of what is involved in knowing the words.***

According to Sinclair (1991), the two models of how words occur in a text are described as *the open-choice principle* and *idiom principle*. While *the open-choice principle* is a model in which language text can be seen as a series of choices and only grammar limits choices, *the idiom principle* is a mode in which the choice of words and register are memorized as partly pre-constructed sequences. The latter is widely used as a justification for the study of chunks.

Nation (2001), Richards (1976), Palmberg (1986) and Miller (1999) have described that knowing a word involves knowing words it typically occurs with (collocations). Among them, Nation (2001) proposes systematic assumptions of knowing words, namely, collocation belongs to both receptive and productive knowledge in use.

4. ***Teaching phrase-patterns help learners' vocabulary expansion***

According to Twaddell (1973), it is important to teach phrase-patterns from early stages of L2 learning to expand learners' vocabulary. He explains that vocabulary expansion will occur from the intermediate stages of L2 learning if "the most habitual parts of language use" such as phrase-patterns

and sentence patterns are "practiced and established as early as possible" (Twaddell, 1973, p. 63). In other words, new vocabulary can be adapted into the L2 patterns after the habits have been formed. Korosadowixz-Stuzynska (1980) has the same opinion as Twaddell (1973) and makes an additional comment on it. He claims that it is important to select collocations to be taught based on certain criteria (*need, usefulness, productivity, currency, frequency* and *ease*), present them in context and contrast them with the equivalent native-language collocations that might prevent learners from acquiring them smoothly (Korosadowixz-Stuzynska, 1980, pp. 116-117). Influence from L1 in acquiring collocations is examined by many researchers such as Bahns (1993) and Caroli (1998) (see Chapter 3).

As stated above, many researchers argue that collocations are important, supported by certain assumptions.

2.5. Summary

This section reviews literature of collocation studies in terms of the distinction among other phraseological combinations, several study domains, and their importance.

In 2.2., in order to distinguish idioms, collocations and free combinations, many linguists have reached a consensus about two criteria: (a) semantic opacity, which means whether the meaning of the combinations is retrievable from each constituent, and (b) collocational restriction, which refers to whether other synonymous words can be substituted for any word in the word combinations. Some linguists examine more criteria such as syntactic frozenness and peculiarity to a language to set a more precise boundary among them. However, as these criteria are a matter of degree, it

is difficult to clearly divide the three phraseological combinations which are along a continuum. Because of these features of phraseological combinations, inconsistent terms for collocation have been arisen.

In 2.3, previous literature on collocations is examined in five domains: descriptive studies, semantic studies, computational studies, lexicographic studies and pedagogical studies.

In descriptive studies, it is Firth (1957) who first elaborated the theory of meaning in terms of syntagmatic aspects of lexis and explored the distribution of words in a text and how some occur predictably together with others. His notion of collocation has profoundly influenced his successors in Firthian studies, who further examine collocations based on his concept. However, over the years, collocations have been gradually defined from more and more angles, using an increasing number of different features. This is necessary because collocations are impossible to describe in terms of only one feature. This reflects our increasing understanding of the complexity of collocations.

In semantic studies, in contrast to descriptive studies, semanticists, who have discussed lexical relations and types of meanings in terms of the paradigmatic aspect of lexis, criticize the studies of collocations by Firth and his followers as insufficient because of certain inadequacies. Then, they have attempted to investigate collocations in terms of the semantic framework and syntagmatic lexical relations under the scope of semantics. In spite of mentioning some shortcomings of the collocational studies by Firth and his followers, they do not give enough strong support for their concept and function of collocations in terms of semantic markers and so on. In the 1990s, in connection with the development of corpus linguistics, semantic prosody

became a new concept to express "a consistent aura of meaning with which a form is imbued by its collocates" (Louw, 1993, p. 157) and some researchers have examined it.

In computational studies, the interest of the researchers is to discuss collocation study in a certain environment in which the items composing collocations occur and to treat and explain collocation in objective ways, after judging from collocation data in large corpora. This is related to the development of computers. They have played an important role, giving researchers the means to analyze the frequency of collocations. Abundant information about collocations can be easily obtained from spoken or written texts by using "text-retrieval software" (Granger, p. 145) and it shows objectively the frequency of co-occurrence of certain words of collocations in a certain environment. Some researchers (Berry-Rogghe, 1973; Jones and Sinclair, 1974; Sinclair, 1966) have given precise definitions of collocation, *node*, *collocate*, and *span*, and a concretely appropriate span has been investigated. Kjellmer (1984, 1987) has been concerned with the distinctiveness of collocation and how it could be measured. Some researchers (Biber, 1993; Noel, 1992; Renouf & Sinclair, 1991) have applied computer techniques to extract collocations automatically and to create corpora and dictionaries based on the concepts of Berry-Rogghe (1973) and Sinclair (1966). They have developed specific programs and techniques of analysis which can be used to do further collocation studies. Thus, researchers in the computational studies rely on computer technology and statistics for collocation studies.

However, they do not seem to be interested in features of word senses or any indication of the number of different meanings that words have. Biber

(1993, p. 531) mentions this point and says that computers are just a tool—it is still necessary for linguists to interpret the data they provide.

In lexicographic studies, researchers have been discussing some questions of collocations in a dictionary: Should collocations be regarded as separate dictionary entries? If so, which collocations and how many should be dealt with in the restricted space of a dictionary? General purpose English dictionaries have had a tendency to give as much collocational information as possible, but they have to provide other information such as grammatical information about the word. They have also seemed to have no consensus on important collocations. In order to overcome the shortcomings of general purpose dictionaries, collocation dictionaries including electric versions have been edited based on high-frequency collocations extracted from large corpora and development by computer technology.

In pedagogical studies, Lexical Approach advocates have made a breakthrough and have put forward the challenging concept that chunks, especially collocations, are a central component in language. Based on that theory, they have sought pedagogically effective practice to enlarge learners' mental lexicon by raising learners' attention of collocational knowledge from the early stages. In short, learning collocations explicitly and autonomously is fundamental in Lexical Approach and teachers should play a significant role to support learners to organize their notebooks containing many collocations, preparing activities, reviews and exercises on collocations. Thus, Lexical Approach advocates focus on collocations in language and concrete collocational teaching methodology.

An overview of collocation studies in the five domains shows that collocation is treated absolutely and comparatively. Researchers in

computational studies objectively deal with collocation using statistics and computers, whereas collocations should be managed by the comparison with other phraseological combinations. In short, some criteria such as frequency can be calculated with computers, but other criteria such as semantic opacity cannot.

In the last section, the importance of collocation is shown in terms of memorization, fluent and appropriate language use, aspects of knowing words, word models and teaching effectiveness. Based on these assumptions, empirical research is needed to clarify how collocations are acquired, what factors are related to the acquisition and so on. These will be introduced in the next chapter.

Chapter 3. Literature review (2): Empirical research on collocation

3.1. Introduction

In comparison with the collocation studies discussed in the previous chapter, empirical research on collocation from the perspective of L2 acquisition has been extensively conducted for the last two decades. This chapter briefly reviews the main empirical research on collocation to date.

3.2. Empirical research on collocation to date

Many researchers direct their attention to differences between L1 and L2 which seem to affect the acquisition of collocations with their original focus on their results and pedagogical implications. The pieces of research are divided into two groups: mainly in terms of L1 influence, and in terms of some factors including it. The following sections review their research in terms of the difference between L1 and L2 influence and other perspectives.

3.2.1. Collocation research mainly in terms of L1 influence

Bahns (1993), Bahns and Eldaw (1993), Biskup (1992), Caroli (1998), Granger (1998) and Nesselhauf (2003) study collocations by contrastive analysis between L1 and L2, and stress the great influence of L1 on the acquisition and use of collocations.

Biskup (1992) conducted a comparative study of advanced English of Polish and German students in order to discover the main causes of collocational errors and confirm the influence of L1 on production of L2

collocations. Her subjects were instructed to supply the English translation equivalents of lexical collocations in Polish and German separately. There were two main findings she discovered in her experiment. One finding was that the quantitative and qualitative results had something to do with different teaching policies in Poland and Germany. The Polish learners tended to avoid using collocations whose usage they were not convinced of, because the Polish teaching of English focused on accuracy. On the other hand, German learners tried to use alternative ways: paraphrasing and using definition, because they were used to taking English classes which were aimed at fluency of English communication. The other finding was that Polish learners were more dependent on L1 for producing English, while German learners looked for more creative strategies. This finding seemed to be related to semantic and formal similarity between L1 and L2 and the number of synonyms acceptable as collocates.

The purpose of Bahns and Eldaw (1993) was to investigate 58 German advanced EFL students' productive knowledge of English collocations including the ability to paraphrase them in a translation task and a cloze task. They had two main findings: (a) Collocations were a major problem in writing English for advanced students. (b) Students had particular difficulty paraphrasing them. Based on these findings, they suggested that EFL teaching should focus on those collocations which are difficult for learners to paraphrase.

As a significant sub-purpose of their collocation research, Bahns and Eldaw (1993) also examined the relationship between collocational competence and general vocabulary size. They could draw the tentative conclusion that "learners' knowledge of collocations did not develop in

parallel with their knowledge of vocabulary" (1993, p. 109). This might be in part due to the fact that collocations were not highlighted, considering how much vocabulary teaching was focused on. This emphasizes the need for effective collocation teaching.

Then, further questions were discussed by Bahns (1993): "Which of the tens of thousands of collocations do we select for special treatment in the classroom?" "And are there any criteria to decide which collocations need to be taught and which do not?" (1993, p. 58). Using a contrastive approach to the concept of lexical collocation, he found that the collocations, for which there are no direct translational equivalence, need to be focused on in the teaching of English to speakers of German and as a result, the enormous teaching and learning load can be reduced. In other words, in order to develop students' collocational knowledge based on this idea in their classes, a workbook which presents a selection of collocations geared to their specific difficulties with a particular L1 background should be provided, as Mackin (1978, p. 151) also suggests.

Nesselhauf (2003) also maintains that the collocations for which there are no direct translational equivalence should be focused on in her research. She reported an exploratory study that analysed the use of verb-noun collocations such as *take a break* or *shake one's head* used by advanced German-speaking learners of English in free written production. About 500-word argumentative and non-technical writing by third or fourth year German-speaking university students of English was evaluated in terms of their acceptability. In her research, whether the combination written by the students is a free combination, a restricted combination or an idiom is determined by several native speakers of English, dictionaries such as the

Oxford Advanced Learner's Dictionary (*OALD*, 2000) and the *Collins COBUILD English Dictionary* (*CCED*, 1995) and the British National Corpus (BNC). The application to the data resulted in a database of verb-noun combinations classified as to their degree of restriction: free combinations, restricted combinations, more restricted combinations, idioms and to their degree of acceptability: clearly acceptable, largely acceptable, largely unacceptable and clearly unacceptable.

One of her results is similar to ones of Bahns (1993) and Biskup (1992) that the L1 influence on the production of collocations is rather high. The other result, her original one, shows that among verb-noun combinations the highest rate of mistakes occurs in combinations with a medium degree of restriction because of the wrong choice of verb on verb-noun combination mistakes. Therefore, the suggestion was made that the focus should be on the verb in the teaching of verb-noun collocations, since it is the verb that causes the greatest difficulties. Oikawa (1993) similarly recommends that core meaning of basic verbs should be taught, especially, for lower-level learners because they face difficulty in producing verb-noun collocations because of their L1, Japanese. Her other suggestion is that collocations should be taught with reference to L1 and it is important to teach them including prepositions, articles, etc, because of the difference between L1 and L2.

Nesselhauf (2003) implies that three criteria for selection of collocations should be considered. One is *acceptability and frequency* (p. 238). Collocations to be learned should be acceptable and frequent in a neutral register and any special register that is of use to the learner. The other two, which are more focused on by her, are *restriction* and *congruence*. As for

restriction, verb-noun combinations with a medium degree of restriction are the most frequently mistaken and so they should receive particular attention of learners. With respect to *congruence*, as non-congruence in L1 and L2 causes learners' errors, non-congruent collocations should be more focused on in language teaching. In addition, she found in her data analysis that even congruent collocations were mistaken, which is opposed to Bahns' argument (1993) that congruent collocations can be entirely disregarded because learners will automatically acquire them. Therefore, she strongly suggests that further research is needed on which congruent collocations are difficult for learners.

Caroli's research (1998) also focused on lexical collocations in terms of L1 and L2 difference on the acquisition of collocations. Her aim is to examine the influence of L1 on English collocational knowledge and the learning burden for learners, and illustrate the relation between the development of learners' knowledge of English collocations and their L1 vocabulary, and between the development of receptive and productive knowledge of collocation. Seventy-three Italian learners of English at upper secondary schools were asked to take Nation's vocabulary test (1990), productive collocation test and receptive collocation test consisting of 15 Italian literal equivalent collocations and 15 non-equivalent collocations.

One of Caroli's results, which is identified with that of Bahns and Eldaw (1993) but which is opposed to that of Gitsaki (1999), is that no close correlation was found between the general vocabulary knowledge and the collocational knowledge. In other words, even if general vocabulary increases steadily with the level of language learning, it does not necessarily mean that collocational knowledge increases at the same rate. Another result is

that at all stages of language learning, learners seem to have higher receptive knowledge of collocations than productive knowledge of collocations. The other result, which is related to L1 and L2 difference, is that learners at the early stage of vocabulary development resort to L1 features in selecting possible English collocates and gradually come to comprehend the correct target language feature. Furthermore, Italian literal equivalent collocations are more easily acquired, which provides less burden for learners than non-equivalent collocations, as many researchers mention.

As many researchers suggest as pedagogical implications, Caroli (1998) also proposes that a word should be presented with some of its most frequent collocates and that teachers should have the responsibility to create conditions which effectively compensate for the foreign learners' lack of collocation learning.

Granger (1998) investigated the difference in productive collocations and formulae between native speakers of English and French learners of English based on the International Corpus of Learner English (ICLE). Above all, in the first part of her investigation, she focused on the collocational study of amplifiers functioning as modifiers of adjectives such as *totally* or *highly,* proposing the hypothesis that learners would use them less frequently than native speakers. She found that the frequencies of two amplifiers, *completely* and *totally*, which were direct translation equivalents in L1, were much higher than those of other amplifiers. This might be because by using amplifiers which are similar to the equivalent in French, they did not need to become risk takers and could avoid making mistakes. In short, L1 played an important role in collocation acquisition and use in the L2.

From the pedagogical implications of her research, Granger suggested

that EFL material should be developed based on this result to give learners the most efficient learning aid. She also proposed that EFL teaching programmes should not rely much on first language acquisition theory, citing Cowie (1998) that "the child first acquires 'chunks' of language, then analyzes them and finally develops from them regular syntactic rules" (p. 14). This is because there is not enough evidence to apply the theory to the collocational acquisition for L2 learners. She concluded that empirical work was urgently needed to investigate the mechanism of collocation acquisition, using both the wide variety of large computer corpus and the introspective tests.

3.2.2. Collocation research in terms of several factors including L1 influence

Kellerman (1979), Farghal and Obidedat (1995), Fayez-Hussein (1990), Gitsaki (1999), Elyildirm (1997), Dechert and Lennon (1989), Lennon (1996) and Blum and Levenston (1978) attribute L2 learners' insufficient collocational knowledge to various factors.

Kellerman (1979) believes that learners could make use of their native language in their target language production where they have a deficient target language proficiency. How learners rely on the native language to produce their target language is explained in terms of L1 influence within the framework of learners' perception of the distance between the native language and the target language and also the degree of markedness of L1 items, which is crucial for transfer. If learners perceive the distance between the target language and the native language to be greater, the influence of transfer will be lower, while if they perceive distance between them to be a

little, then they will transfer the relevant items or structure from their native language. The other framework, markedness, refers to such features as irregularity, infrequency, semantic opaqueness, and unmarkedness as regularity, frequency, productiveness, semantic transparency, and coreness in his classification. Markedness is assigned to the native language item to be transferred. If the markedness level is too high, transfer will be blocked, and if the markedness level is not high, it will functions as language distance. Thus, the interaction of the two factors, distance and markedness, will determine whether transfer is activated or not.

To prove L1 influence on learners' target language production, Kellerman (1979) conducted two experiments: one is about the transferability of idiomatic expressions and the other is about native speakers' intuitions about semantic space. The first experiment was carried out with 72 first-year to third-year Dutch learners of English at a university who were given 20 Dutch-based idiomatic expressions and asked to judge if they were correct English or not. The main result showed that idioms are not subject to transfer, probably because they are marked expressions for them. The second experiment was conducted with 81 Dutch learners of English to investigate the effect of the native language in terms of coreness and unmarkedness of words as against peripheral and marked meaning. He hypothesized core meaning and unmarked meaning would be transferred to the second language. The subjects were given 17 sentences presenting the core and non-core senses of the word *breken* (i.e. break) such as *break his leg* and *break the record* and judged which combinations were correct in English. The results confirmed Kellerman's hypothesis and he argued that there may be some factors such as coreness and frequency affecting transferability from

the mother tongue to the second language. Thus, he strongly argues that transfer from the native language plays a big role in the process of acquisition of the target language.

Learners' insufficient knowledge of collocation affected by lack of solid general English proficiency is reported by Fayez-Hussein (1990). The aim of his research is to access 200 third-year and fourth-year Jordanian university students majoring in English as to their ability to collocate words correctly in English. A multiple-choice test which consisted of 40 lexical collocations was used to evaluate the students' collocational knowledge. The result showed the lack of their collocational knowledge (only 48.4% of the collocations were answered correctly, which was far less than the anticipated scores of 60%.) The 48.4% indicates these collocations are frequently encountered in daily task in their classrooms, while the collocations which were answered incorrectly are due to unfamiliarity with collocational structure, overgeneralization that learners attempt at reducing the syntactic and lexical aspects of the language to simpler and more regular system easier to them, and L1 negative transfer which was responsible for the highest percentage (49.4%) of incorrect answers. He stated that the three main causes of incorrect answers, namely, unfamiliarity, overgeneralization and L2 negative transfer, resulted in the tendency of simplified learning in a second language learning situation. Citing Jain (1974, p. 197), he argues that many components such as teaching materials, teaching techniques, popular school grammars and teaching and learning goals attempt to bring about simplified learning for EFL learners. As a result, the learners generally ignore acquiring and using specific terms and subsume them in generic terms.

Based on these results, he stresses the importance of the teachers' role for its pedagogical implications. Teachers should introduce collocations systematically to learners to make them observe the restrictions on the co-occurrence of items within a sentence, especially lexical combination.

Gitsaki (1999) investigated the relation between learners' English collocational knowledge and their overall language proficiency in three different proficiency levels and factors influencing the acquisition of collocations. After dividing 275 Greek learners of EFL into post-beginners, intermediate learners and post-intermediate learners, three tests—essay writing, a translation and fill-in-the-blank test—were conducted in terms of 37 types of collocations, while many linguists focus on limited types of collocations.

Gitsaki (1999) got two main results from her research. One shows that there is significant development of collocational knowledge as overall language proficiency develops, which is against Bahns and Eldaw (1993) and Calori (1998). The other result, which is exaggerated as important in collocation teaching and learning, is that whether 37 types of collocations are acquired early or later is determined by some influential factors: maturation, language proficiency, instruction, saliency, L1-L2 difference, complexity and arbitrariness of collocations. She explained these factors as follows:

> Collocational knowledge develops as overall language proficiency develops, as students become more mature, and as more exposure to collocations takes place. The development of collocational knowledge is also influenced by the 'salience' of the particular collocation types. Grammatical collocations that are simple and frequent in every day speech are acquired early. The more complex structures are acquired later. Lexical collocations are more difficult to acquire than the

> simple grammatical collocations. They are syntactically simple, but their acquisition is affected by other factors of 'semantic complexity', e.g. arbitrariness, predictability and idiomaticity, i.e. the more fixed and idiomatic they are, the more difficult they are to acquire. (p. 146)

Based on these results, she suggested two pedagogical implications for designing materials and instructing about collocations in the classroom. The knowledge of order of acquisition of collocations can help syllabus designers and teachers present collocations to facilitate learners' step-by-step development of collocational knowledge. The other is that teachers can easily access many teaching materials for learners' different English proficiency and provide them with more information on collocations.

Farghal and Obidedat (1995) reported that collocation teaching in EFL classes is important, but in general neglected. An English fill-in-the-blank test and an Arabic translation test involving 22 common collocations about core topics such as food, color and weather provided to the third-year and fourth year English majors at Yarmouk university and language teachers of English respectively. The results showed serious deficiency in collocations in both groups. The causes they analyzed arose from subjects' lexical simplification like the use of synonymy, paraphrasing, avoidance and L1 negative transfer. They mentioned that it was due to language instructors' tendency to teach words individually rather than collocationally and to learners' tendency to fail to exploit distinction of collocations in their writing and speaking and to lack common collocations in their repertoire. Based on the results, they made two main suggestions for pedagogical implications that collocation should be highlighted as an important aspect of language learning as well as idioms and learners' attention should be directed to the

lexical divergences between the collocations in L1 and L2.

Elyildirm (1997) argued the importance of collocation acquisition by both quantitative research and qualitative research. He conducted two research studies on the treatment in EFL textbooks of the most frequent verb-noun and adjective-noun collocations taken from the Lancaster-Oslo/Bergen Corpus (LOB corpus) as a representative sample of the natural language data and the acquisition of collocational knowledge by learners in terms of generalization, overgeneralization, comprehension and production of the items given in the local textbooks. First, a comparison of EFL textbooks in Turkey and international textbooks at four different levels in terms of target collocations extracting from the LOB corpus was made and it was found that few target collocations was treated in both sets of textbooks and there was no pattern or gradation of collocational input. Moreover, collocations occurring in both textbooks were not treated explicitly nor implicitly with practice exercises. Therefore, learners are not provided with adequate and appropriate input of important collocations with the textbooks. The second data analysis from the three collocation tests－correct or incorrect test, translation test and fill-in-the-blank test－were examined in terms of generalization, overgeneralization, comprehension and production of the target collocations. The results showed that learners tended to generalize the unfamiliar combinations in reference to the frequently used collocations in textbooks and to overgeneralize incorrectly on answered collocations with incomplete knowledge of collocability of the target items and L1 negative transfer. As for L1 negative transfer on comprehension and production of the target collocations, collocations which were literally equivalent to learners' native language were easily acquired and collocations which were different

from it were difficult to acquire, as many linguists mentioned. Thus, the lack of input of collocations in the textbooks leads learners to generalize the unfamiliar combinations in reference to collocations they have frequently seen in the textbooks, overgeneralize collocations and resort to their L1.

As the pedagogical implications, he made the following suggestions for textbook writers, material writers, language teachers and learners. In compiling textbooks, textbook writers should take into consideration learners' needs and interests, high-frequency collocations in the appropriate context. Material writers should check the collocational differences and similarities between L1 and L2 before preparing the materials because L1 is an influential determiner. Language teachers should direct learners' attention to high-frequency collocations explicitly with intensive and practical teaching to activate learners' collocability and encourage them to use previously encountered lexical collocations more productively. Learners should attempt to spend much time improving their collocational knowledge through reading and listening to produce them instead of avoiding them.

The interest of Blum and Levenston (1978) was on the semantics of interlanguage formation. In order to investigate L2 learners' process of acquiring the target language, they hypothesized the four processes learners were likely to use: overgeneralization of hyponymic relationships, overgeneralization of antonymic relationships, neutralization of register restriction and neutralization of collocational restriction. Two data analyses were made in different subjects: the work with learners of English and the work with learners of Hebrew. First, with the work with learners of English, the subjects were 100 native speakers of Hebrew who were all university students, aged 18 to 25 years, male and female and 80 learners who were 17

year-old high school students, in their seventh year of learning English at one of the foremost high schools in Jerusalem. Second, with the work with learners of Hebrew, the subjects were 100 native speakers of Hebrew who were all university students, aged 17 to 26, male and female and 100 learners of Hebrew who were English, Spanish, Hungarian and Rumanian and who were also university students, aged 17 to 26 male and female. In both analyses, the results of two tests were examined—a multiple-choice test and a fill-in-the-blank test—with a subsequent translation test into Hebrew. The purpose of these tests were to make comparison between the learner's receptive knowledge of vocabulary and productive knowledge of vocabulary and between the patterns of learners' different behaviors about when they knew a word and when they did not.

These two analyses revealed that in producing a word, learners showed overgeneralization of hyponymic relationships and antonymic relationships, and ignorance of the register-restriction by choosing words of general use as a strategy of communication especially when they encountered words which had no equivalent in their mother tongue. The finding indicated that these learners were ignorant of the restricted collocations rather than ignorant of the words themselves. From this finding, Blum and Levenston (1978) assumed that at the initial stage overgeneralization and ignorance were manifested as a strategy of avoidance and at a later stage, as more semantic information was acquired, the process might lead to fossilization and when a collocation was learnt holophrastically, the process was inoperative.

Dechert and Lennon (1989) and Lennon (1996) conducted error analysis in learners' essay and explained the reasons of learners' errors. According to Dechert and Lennon (1989), error analysis in essays written by two

advanced-level university students who spent much time in England was carried out, focusing on the syntagmatic blend occurring in the subjects' writing. They set up their research questions (pp. 164-165): "Why was it so full of collocational blends? Why had their apprehension of collocational affinities between lexical items not reached a state of proceduralized automaticity?" They explained the answers to these questions in terms of the following two factors: extra-casual blends and intra-casual blends. The extra-casual blends resulted from an incoherent assemblage of their thoughts which had not been properly differentiated, ordered and linked so as to form a coherent thought, because the ability to express their thought appropriately in a second language in various contexts in classes had priority over their ability to organize and to relate thoughts coherently. The intra-casual blends seemed to be caused because these students were not taught in details how lexical items in English might collocate at the phase level. In other words, the area between lexis and grammar/syntax, collocations, had been neglected. It is because they were much more used to a natural casual style of communication in English and not used to writing an essay on a complex topic from an unfamiliar subject area. These two points came out of the two students' collocational deficiency.

The investigation of verb choice errors was made by Lennon (1996) with analysis of a corpus of 745 oral errors which were collected transcripts of recordings of picture-story narrations made on 15 separate occasions by four female advanced German learners of English who spent six months at the University of Reading in England. The errors were divided into 10 discrete categories: intra-lexime, intra-VP, intra-Verb-Group, preposition and adverbial particle choice, pro-forms choice, adverbial and particle position,

verb complementation, clause linkage, sentence structure and lexical choice. The result indicated that among them lexical choice was the weakest and especially lexical verb choice seemed to be vague and problematic for these four subjects, although they had a broad comprehension of verb meaning, because they might over-rely on their ideas of core meaning of polysemous verbs and might be derailed by translation equivalents into L1. The subjects tended to transfer their native language to the target production or overgeneralize the use of some common verbs such as *put, go*, and *take*, so that their deficiency of knowledge of collocational probabilities would be compensated. Based on the results, Lennon (1996) stated that the advanced learners should not rely on translation and become familiar by some practice with *simple* high-frequency verbs, by which learners explore meaning-ranges and limitations, collocational possibilities and restrictions and sense relations.

3.2.3. Other collocation research

The interest of Cowie and Howarth (1996) and Howarth (1998a, b) was in analysing phraseology in the written English of advanced second or foreign language learners. They tried to discover the phraseological norm of native speakers of English and examine how learners' usage deviates from such norms. They investigated how phraseological knowledge contributes in written English, comparing four essays of one native and one non-native university students, all of between 1500 and 3000 words on topics in applied linguistics. One of their main findings showed that there was a measurable overlap in collocational use between a proficient native speaker of English and a relatively proficient non-native speaker of English in the proportion of

usage of a verb and a noun pattern to the whole essays. The other finding was that it did not seem that writers' knowledge of collocations developed through repeated use or through massive exposure to them in the writing, as Granger (1998, p. 156-158) discussed. In other words, it seemed that writers were becoming familiar with collocations through their experience of perception of their "idiosyncratic properties and specifically of arbitrariness with which their components select each other" (1996, p. 92).

From the pedagogical perspective, Howarth (1998a, b) criticized that the present EFL teachers, by both native and non-native speakers, little understood the phraseological mechanisms of the language. In fact, as learners' English proficiency developed, teachers tended to instruct their learners to memorize an increasing number of idioms, which "form a very small proportion of the items identified for both native writers and non-native, and arguably present less severe problems for learners" (Cowie, 1998, p. 14). He also pointed out that EFL materials appeared to show only two categories of word combinations: idioms and free combinations, focusing learners' attention only on them. Consequently, many learners failed to notice and understand the existence of collocations, which were the central area of the phraseological spectrum between idioms and free combinations.

Among early studies of collocations, Greenbaum (1970) conducted a questionnaire to 300 native speakers of English, who were told to complete a series of sentences using the given key words. He focused on a few degree adverbs such as *completely* and *greatly* and his results indicated that there were strong collocational links. For instance, *utterly* and *completely* tended to take pejorative verbs and adjectives, while *greatly* and *much* collocated with *admire* and *enjoy*.

The "native-like proficiency of a language depends crucially on knowledge of a stock of prefabricated units" (Cowie, 1994, p. 3168) obviously involves knowledge of collocation. Herbst (1996) conducted translation, a cloze-test and a completion test, which consist of 100 test items, to 100 students of English at two German universities and 58 English students at four English universities and compared the results of the two groups. The result clearly revealed that a particular collocation was more used by native speakers of English than by German speakers of English. Strong supporting evidence to his argument came particularly from the completion test. Some of the test items used in the completion test were identical with Greenbaum's (1974) and it was found that the result of the English native speakers was quite similar to Greenbaum's, while the results of the German students were different. This research showed that the German students' collocational knowledge was obviously deficient, compared with that of English native speakers.

Channell (1981) aimed to propose an approach to the teaching of English vocabulary. In the third section of his paper which gave examples of teaching material and exercises, he maintained that knowing which words a word collocated with was an important aspect of vocabulary acquisition. In his research, eight advanced EFL students of English were asked to fill in collocational grids which consist of adjectives (e.g. *handsome*, *pretty*, *charming* and *lovely*) and nouns (e.g. *woman*, *voice*, *view* and *dress*). The result showed that learners failed to mark a large number of acceptable combinations between nodes and collocates, although they were individually familiar with these words in the research. He mentioned as a pedagogical implication that words should be presented with high-frequency collocates

when they were first encountered by learners.

Ghadessy (1989) investigated language and discourse structure development at two educational levels (PR3 and PR6) of primary school pupils in Singapore (N = 176) by comparing the two groups' free compositions for a set of four pictures. The analysis of a few key vocabulary items in the two sets of data illustrated some of the major differences between the two groups of students. For example, in the section of collocation, two very high-frequency words, *ball* and *tree* were analyzed in terms of the words which occurred with them. The result indicated that higher level students used more pre-modifiers with these two nodes and more advanced structure. On the other hand, post-modifiers were used less frequently for both two groups and no balanced development of the targeted structure could be seen. He did not reach a generalized conclusion from the results which he obtained, because of the small number of items tested.

3.2.4. Summary

Many researchers conducted empirical research in terms of various perspectives to realize how learners' collocational knowledge was developed. Their empirical research on collocation to date is summarized in the following Table 9:

Table 9. Empirical research on collocation

year	research	collocations	subjects	instrument	results
1970	Greenbaum	verb-adverb collocations	300 native speakers of English	questionnaire	・There were close collocational links between *greatly* and *much,* and *admire* and *enjoy*
1978	Blum and Levenston	general use of collocations	1. 100 native speakers of English at universities and 80 Hebrew high school students 2. 100 Hebrew university students and 100 learners of Hebrew	multiple choice test, fill-in-the-blank test, and translation test for L2 learners	・In producing a word, overgeneralization of hyponymic relationships, antonymic relationships and ignorance of the register-restriction by choosing words of general use can be seen as a communication strategy especially when learners encounter words which have no equivalent in their mother tongue.
1979	Kellerman	idiomatic expressions	72 Dutch learners of English at a university	correct or incorrect test	・Trace of negative transfer from Dutch is not identified.
1979	Kellerman	17 sentences containing core and non-core senses of the word 'break'	81 Dutch learners of English at a university	correct or incorrect test	・Coreness and frequency are the factors affecting transferability from the mother tongue.
1981	Channell	adjective-noun collocations	eight advanced EFL students	collocational grid	・Students failed to mark a large number of acceptable collocations, although they were individually familiar with the words.
1989	Dechert and Lennon	general use of collocations	two advanced-level university students who spent much time in England	free writing task	・The reason why the subjects' writing was so full of collocational blend is due to extra-causal blend and intra-casual blend.
1989	Ghadessy	general use of collocations	176 primary school students in Singapore	writing test based on pictures	・Higher level students used more pre-modifiers with two key words, *ball* and *tree* and more advanced structures. ・post-modifiers were used less frequently by both higher level students and lower level students and no balanced development of the targeted structure could be noticed.

year	research	collocations	subjects	instrument	results
1990	Fayez-Hussein	40 lexical collocations	200 undergraduate Jordanian students majoring in English	multiple choice test	・Learners' collocational knowledge is deficient. ・Incorrect collocations are due to unfamiliarity with collocational structure, overgeneralization and negative transfer.
1992	Biskup	lexical collocations	advanced Polish and German students of English	English translation test	・Polish learners were dependent more on L1 for producing English, while German learners looked for more creative strategies. ・Polish learners tended to avoid unknown collocations, while German learners tried to use alternative ways.
1993	Bahns and Eldaw	15 verb-noun collocations	58 German advanced EFL students	translation and cloze test	・German students had problems with collocation in writing and they particularly had difficulty paraphrasing collocations. ・Learner's collocational knowledge does not develop in parallel with their general vocabulary knowledge.
1995	Farghal and Obidedat	22 common collocations	undergraduate Arabic English majors and language teachers of English	fill-in-the-blank test and translation test	・Both subjects have deficiency in collocations because of lexical simplification, avoidance and transfer.
1996	Cowie and Howarth	phraseological combinations	one native and one non-native university students	free writing task	・There was a measurable overlap in collocational use between proficient NSs and relatively proficient NNSs in the proportion of usage of a verb-noun collocation ・Subjects are becoming familiar to collocations through their experience of perception of their idiosyncratic properties and specifically of arbitrariness with which their components select each other.
1996	Harbest	general use of collocations	100 German students of English at two German universities and 58 English students at four English universities	translation test, a cloze-test and a fill-in-the-blank test	・German students' collocational knowledge is deficient.

year	research	collocations	subjects	instrument	results
1996	Lennon	general use of collocations	four female German university students who had spent six months in England	recordings of oral picture-story narrations	・Lexical verb choice is vague and problematic for the four students. ・Subjects over-rely on their ideas of core meaning of polysemous verbs and translation equivalents in L1
1997	Elyildirm	verb-noun, adjective noun collocations	121 Turkish tenth-grade students at upper secondary schools	correct or incorrect test, translation test and fill-in-the-blank test	・Learners tend to produce collocations, resorting to generalization, overgeneralization, and L1 transfer.
1998	Caroli	30 verb-noun collocations	73 Italian learners of English at upper secondary schools	fill-in-the-blank test and multiple choice test	・No close correlation was found between the general vocabulary knowledge and the collocational knowledge. ・Learners have higher receptive knowledge of collocations than productive knowledge of collocations. ・Learners at the early stage of vocabulary development resort to L1 features in selecting possible English collocates.
1998	Granger	adverbial collocations	native speakers of English and French learners of English based on ICLE	corpus study	・The frequency of amplifiers which were direct translation equivalence in L1 was much higher than those of other amplifiers.
1999	Gitsaki	37-type collocations	275 Greek learners of English of EFL	free writing, translation test and fill-in-the-blank test	・Whether collocations are acquired early or later is determined by some influential factors: maturation, language proficiency, instruction, saliency, L1-L2 differences, complexity and the arbitrariness of collocations.
2003	Nesselhauf	verb-noun collocations	German-speaking university students of English	free writing task	・The L1 influence on the production of collocations is rather strong. ・The highest rate of mistakes occurs in combinations with a medium degree of restriction because of the choice of verbs.

3.3. State of collocation research in Japan to date

Research on collocation in Japan used to be very limited, because conducting research on collocation was thought to be very difficult: the definition of collocation was vague and Japanese terms for collocation were different according to different English textbooks, word books, dictionaries and so on. It seemed that collocation was the last study field in the lexis which English teachers and researchers carried out research on, although they had already regarded collocation as very important for Japanese learners of English.

However, collocation research is now in the spotlight to some extent. This is because collocation research is closely related to various corpora in association with the development of computer technology. As collocation research based on corpus study is making progress, some researchers such as Matsuno and Sugiura (2002) and Nakamoto (1997) have started a tendency to redefine collocation. The effect of corpus study also influences the compilation of recent English-Japanese dictionaries. As the importance of collocation is recognized, more and more dictionaries are designed to present not only the meaning, the usage and the examples of as many words as possible, but also collocations necessary for the users.

This section introduces collocation research in Japan and the description of collocations in English-Japanese dictionaries.

3.3.1. Collocation research in Japan

Nakamoto (1997) and Matsuno and Sugiura (2002) try to present a clear definition of collocation in their studies.

Nakamoto (1997) aims at improving the description of collocation in

English-Japanese dictionaries by giving a new definition of collocation. Reviewing 16 selected books and articles on semantics and lexicography which mention collocation critically, he divides the definitions of collocation in them into three criteria for judging whether a given combination can be regarded as a collocation: frequency, collocational expectancy, and semantic opacity (of a constituent). He concludes that all of the criteria should be combined in deciding how fixed a given combination is and L1 influence should be considered in applying this collocation frame to a description in dictionaries.

Matsuno and Sugiura (2002) are also interested in redefining collocation as Nakamoto (1997). Researchers have no consensus on the definition of collocation whether it is for a pedagogical point of view or for a linguistic point of view. They propose six criteria to define collocation－frequency of co-occurrence, collocational strength, restricted connectability, grammatically structured, semantically transparent, and adjacency and span. They state that collocations have various characteristics so that they should be identified from these several criteria.

As corpus linguistics has attracted attention for the last decade, collocation research through corpus is becoming popular in Japan. Tono (2003) maintains that one of the advantages obtained from corpus study is frequency and strength of collocations. Teachers used to rely on the native speakers' intuition about which combinations are right or wrong, but now they have access to corpus to check high-frequency collocations. The strength of collocations can also be calculated by using statistics such as MI-score, t-score and z-score. Moreover, in the natural language processing, collocation information can be retrieved from corpora in an on-demand real-time

server-client environment and the results can be adopted to machine translation (Haruno 1998, Sato and Lee 2003). Tono (2003) also recommends more learners' corpora should be gathered to get more information on L2 acquisition. Examples are International Corpus of Learner English (ICLE) which consists of more than 500-word argumentative essays collected from third-year or fourth-year advanced ESL students in about 19 countries (http://www.fltr.ucl.ac.be/fltr/germ/etan/cecl/ Cecl-Projects/Icle/icle.htm) and SST corpus which is computerized audio data from Standard Speaking tests.

Yoshimura (2004) is interested in efficient use of corpora to facilitate learners' collocational knowledge and proposes several classroom activities for college-level upper-intermediate students with corpora. For example, *filling in a collocation grid* is an activity in which students are asked to select acceptable collocations, unacceptable collocations or unknown collocations. The activity is meant to have learners pay more attention to high-frequency collocations. *Counting target collocations in the corpus* is an activity in which students are asked to count the frequency of several pairs, translate the pairs into their L1 and compare the word order in both languages (e.g. *back and forth* vs. *zengo* in Japanese). *Accessing concordance lines* is an activity in which students are asked to check the target collocations in concordance lines. The activity is meant to make learners aware of the semantic prosody of the combinations. Yoshimura (2004) mentions as her conclusion that activities of collocation via corpora have the potential to raise learners' awareness of collocations, although these activities might be a heavy burden to teachers.

Kobayashi (2004) uses several corpora to examine frequency of *have-noun* collocations by Japanese learners of English in comparison to the

frequency in two other corpora which are collected from native speakers of English. The corpora used in this research are the following three: Japanese corpus among sub-corpora of ICLE, Louvain Corpus Native English Essays (LOCNESS) and Usbooks. The Japanese corpus comprises 146,692 words from 289 Japanese learners of English. LOCNESS consists of 144,853 words from 176 American university students. Usbooks is a sub-corpus of the Bank of English and is gathered from books published in the US. The first finding is that Japanese learners of English tend to use definite expressions such as *have-noun* and the use is influenced by Japanese. The second finding is that Japanese learners of English use *have-adjective-noun* expressions less than native speakers of English in the US. Based on these findings, she argues that raising learners' awareness of frequency adjective-noun collocations is important.

Usage of collocations in literary works is highlighted by Hori (2004). He maintains that collocation study is necessary to examine their style of writing as Firth (1957), and not high-frequency but creative collocations should be considered important as the degree of creativity in literature. He examined the collocational style in a corpus of Charles Dickens' works and stressed the importance of his analysis.

Akimoto (1999) reviews the development of idioms and collocations from a historical point of view. His interest is especially focused on *do, give, have, make, take* + deverbal noun and those with verb plus postverbal particle, *up, down, off, out, through, over, away* from old English to late modern English. He concludes that although their book is limited to some specific words such as complex verbs, phrasal verbs and complex prepositions as exemplars of idiomatizational and collocational processes, there could be other areas

related to these concerns, which deserve studying in order to develop a preliminary understanding of them.

3.3.2. Description of collocations in collocation dictionaries and English-Japanese dictionaries

Thanks to the development of corpus studies, collocation studies have made rapid progress which results in better treatment of collocations in English-Japanese dictionaries from both a scientific point of view and a pedagogical point of view. The growing popularity of electronic dictionaries, due to their reasonable price and the portability, began to add extra formation such as collocational information and more communicative information to general English-Japanese dictionaries in new editions.

There are a couple of English dictionaries which treat only collocations in Japan: *The Kenkyusha Dictionary of English Collocations* (1995) and *the Dictionary of English Basic Words' Usage* (1999), and English-Japanese dictionaries have attempted to present as much collocational information as possible.

The Kenkyusha Dictionary of English Collocations (1995), the first English collocation dictionary in Japan, was first published in 1939 and revised in 1995. This dictionary was designed to help learners produce appropriate English sentences on the basis of collocation as a key factor whose meaning is the habitual association of words. Therefore, unlike general English-Japanese dictionaries, it focused on word combinations with nouns, verbs and adjectives and listed 200,000 examples. When revised, to provide more current and rich examples for learners, 380,000 examples of word combinations with three word classes are listed, renewing 80% of all

examples as the result of access of an original corpus gathered by Kenkyusha. Thus, *the Kenkyusha Dictionary of English Collocations* has been used by many Japanese learners of English owing to its abundance of examples and has recently been included in electronic dictionaries.

Edited from more scientific point of view is *the Dictionary of English Basic Words' Usage* (1999). Words which collocate with 874 basic words for Japanese learners of English were selected from a 931,303 word corpus gathered from 10 sources: personal conversations, personal letters, literary works, Japanese textbooks of English, newspapers, business letters, science abstracts, broadcast English, weekly magazines, and women's speech. The combinations were also checked by native speakers of English who have intuition about word combinations. As a consequence of the analysis with a corpus study and checking by native speakers of English, the frequency of the combinations, the examples, the sentence patterns and sentence structure were all presented in this dictionary. Thus, the compilers of this dictionary aim to have learners acquire basic collocations to improve their listening ability based on the theory that it is difficult to attain considerable listening skill without a knowledge of collocations as well as that of words.

Collocations in many English-Japanese dictionaries in Japan used to be treated as one of the most important factors with word meanings and usages, appearing in bold face. However, some new English-Japanese dictionaries published or revised in 2000s have consciously introduced frequently used word combinations as collocations and treated them as more remarkable factors in more highly visible ways.

The Lighthouse English-Japanese Dictionary (fourth edition, 2002), which consists of 62,000 words, highlights collocations in bold face. Moreover,

of the many collocations, verb-noun collocations are taken special notice of and introduced in the distinct section to have learners recognize them. *The Luminous English-Japanese Dictionary* (first edition, 2001), which is published by the same publisher as *The Lighthouse English-Japanese Dictionary* but which consists of 99,000 words for more advanced learners, also utilizes the same treatment for collocations as *The Lighthouse English-Japanese Dictionary* does.

While the two English-Japanese dictionaries mentioned above focus on verb-noun collocations among lexical collocations, *The Super Anchor English-Japanese Dictionary* (third edition, 2003), which comprises 66,300 words, seems to treat each lexical collocation to be equally important. In it, grammatical collocations are written in bold face, but lexical collocations such as adjective-noun collocations, verb-noun collocations and verb-adverb collocations are added in a special section.

The Lexis English-Japanese Dictionary (first edition, 2003), which consists of 98,000 words, has an original special section for English usage including collocations. As a whole, the relation between verbs and prepositions is focused on and appears in bold face. However, the sections which are called *planet board* show the acceptability of expressions judged intuitively by 103 native speakers of English who live in the US (41), the UK (41), Canada (9), Australia (7) and New Zealand (5). For example, those who live in the US and the UK chose *get* to the question, answered the question, "If you don't [do / get / have / take] more exercise, you'll get fat" (p. 611). While the other verbs are used much less than *get*, *do* and *take* are also frequently used in the UK. The *planet board* is intended to show that data from corpus and data from the native speakers' intuition are both

complementary to each other in selecting important expressions for Japanese learners of English.

3.3.3. Summary

As mentioned above, a little progress has been made in the study of collocation for second or foreign learners of English. In Japan to date, although empirical research from an L2 perspective is still at an early stage, the description of collocation in English-Japanese dictionaries is improving due to increasing awareness about the importance of collocation.

All the researchers reviewed in this chapter urge the necessity and importance of collocation teaching and learners' development of collocation competence by contrastive analysis, error analysis or comparison of strategies of native speakers of English and non-native speakers of English. What are needed are materials and workbooks which present a selection of collocations focused on learners' specific difficulties, especially with their L1 background. However, research conducted so far is not enough to clarify what the mechanism of acquisition of collocations is like, how collocations should be taught in a classroom, and what kind of materials should be provided. Further research on collocations from different angles of an L2 perspective is to be done.

Chapter 4. Pilot study

4.1. Introduction

This chapter proposes an original definition of collocation for the following two types of research, referring to previously examined theoretical and practical research on collocation, and then, presents pilot studies to clarify purposes, research questions and experimental procedures before main data analyses.

4.2. Definition of collocation in the present research

Collocation has traditionally been defined as "the company words keep", following Firth's definition. However, as this definition is not clear enough to conceptualize collocation, many researchers have proposed various criteria, which can be divided into two main groups: objective criteria and subjective criteria. Objective criteria can be identified with statistics such as z-score, t-score and MI-score and include frequency of co-occurrence, collocational range and adjacency (span). Subjective criteria cannot be calculated because it is a matter of degree along a continuum and includes collocational restriction, syntactic structure, and semantic opacity.

Table 10. Two main criteria defining collocation

objective criteria	frequency of co-occurrence, collocational range, adjacency (span)
subjective criteria	collocational restriction, syntactic structure , semantic opacity.

As some researchers (Gramley & Pätzold, 1992; Matsuno & Sugiura, 2002; Nakamoto, 1997; Nation, 2001) argue, collocations should be defined from both of these two main criteria in order to identify their framework

more clearly. Objective criteria are landmark for EFL teachers and learners because new objective facts about English collocations, i.e. how collocations are actually used, can be obtained easily via computers without relying on native speakers' intuition. On the other hand, subjective criteria are still taken into consideration, because corpora in which the objective criteria are examined still have some shortcomings such as incomplete and lopsided record of fact in spite of the usefulness (Cook, 2003, see section 4.3.6.). In order to make up for the shortcomings of objective criteria, subjective criteria are still important.

As summarized above, both objective and subjective criteria are adopted to define collocations in this study. Objective criteria such as high frequency of occurrence, z-score, and N±4 span are adopted in corpus-based research. On the other hand, subjective criteria are also broadly applied in empirical collocation research and all the multiword expressions except pure idioms in the figure by Fernando (1996, p. 32) are adopted as collocations (see section 2.2.1.). The reason why Fernando's definition of collocation is determined to be used in this study is that he provides a systematic and varying concept of idioms and habitual collocations based on semantic opacity and collocational restriction.

4.3. Pilot Study I: Corpus-based research

Following the definition of collocation presented in the previous section, the basic collocations should be identified that Japanese learners of English need to acquire to develop a better command of English by effectively teaching them. In order to examine the reality of collocation teaching in Japan, the treatment of collocations in English textbooks should be

investigated because they are the main materials to teach basic English to secondary school students. Therefore, the following four corpus sources were chosen for this study: English I textbook corpus; English II textbook corpus; former English I textbook corpus and revised English I textbook corpus; and UK history textbook corpus. Among various word combinations, verb-noun collocations were chosen in this pilot study in that they are most frequently used combinations, are regarded as key combinations in producing clauses and sentences, and they are the most often targeted in the previous empirical research. English I textbooks for the 10th graders were used for these pilot studies on the ground that they are compiled to cultivate comprehensive English ability. The government guidelines for foreign language teaching explain that English I textbooks' purpose is to develop students' basic abilities to understand speakers' and writers' intention about things of everyday life, to tell and write about their intentions and information, and to foster a positive attitude toward communication. Furthermore, English I is a compulsory subject for upper secondary school students and the majority of 10th graders use English I textbooks to develop their basic English abilities, as is directed by the government guidelines for foreign language teaching set by MEXT.

4.3.1. Pilot Study I-1: Same leveled six English I textbooks

Pilot Study I-1 (Koya, 2003b) intended to compare verb-noun collocations among six English I textbooks of the same level difficulty for Japanese upper secondary schools, and to examine how collocations for Japanese learners deviate from those which are frequently used by native speakers of English, which are exemplified in COBUILD.

The following research questions are set up:

1. Do English I textbooks have any general concept and consensus on what kinds of collocations should be taught?
2. Do English I textbooks have any general concept and consensus on how many collocations should be taught?
3. Do English I textbooks have any general concept and consensus on how collocations should be presented and taught in the textbooks?
4. Does the choice of collocations used in English I textbooks for Japanese upper secondary schools refer to the collocations which are frequently used in major corpora such as the Bank of English[1]?

Among some 50 English I textbooks, *Create, Milestone, One World, Royal English, Sunshine, and Unicorn* were chosen as these six textbooks were considered of the same level according to a survey by the textbook publishers.

Eighty target collocations were selected (see Table 11). The selected collocations were among combinations of 507 words recommended by MEXT to be taught at lower secondary schools with collocates which were common in all the selected textbooks. Whether they were regarded as collocations or not was determined in terms of *COBUILD English Collocations on CD-ROM* and *the BBI Dictionary of English Word Combinations* (Benson et

[1] According to the user's guide in *COLLINS COBUILD English Collocations on CD-ROM* (1995, p.17), the Bank of English contains 320 million written and spoken English words which have been collected from a wide range of different sources. Written texts come from newspapers, fiction and non-fiction books, reports, leaflets, brochures, magazines and so on. Spoken texts come from transcriptions of daily conversation, radio broadcasts, meetings, interviews and discussions and so on. These texts consist of British English (about 70%), American English (about 25%) and other native varieties of English (about 5%).

al., 1997). Especially, *COBUILD English Collocations on CD-ROM* was useful to know how frequently and widely the word combinations are used in the daily life of native speakers of English, because there were about 140,000 node/collocate pairs in the collection and about 2.6 million different examples and all examples are taken from the Bank of English, which is the largest bank of its kind in the world.

Table 11. Verb-noun collocations selected in Pilot Study I-1

break deadlock / bring end / bring peace / carry weight / catch breath / catch bus / catch eye / catch fire / catch glimpse / catch train / change mind / cut cost / cut price / cut rate / cut tax / do job / draw attention / draw conclusion / find job / find way / follow example / get call / get job / get rid / keep distance / keep eye / lose sight / lose weight / make call / make decision / make difference/ make face / make friend / make money / make sense / make use / make visit / make way / meet need / meet requirement / meet standard / pay visit / play part / play part / play role / put end / put money / put pressure / raise money / run business / run company / run country / set example / set fire / set record / set standard / solve problem / stand chance / stand trial / take account / take action / take advantage / take boat / take bus / take care / take holiday /take job / take look / take part / take pick / take picture / take place / take time / take turn / take vacation / take walk / take year / tell difference / turn attention

Collocations were analyzed by the means of TXTANA, a concordance software program and the results were as follows:

(a) Six English I textbooks had no consensus about which collocation should be taught.

(b) There were only a few collocations in the textbooks and there was not so much difference on the number of collocations among them.

(c) Each textbook had a different concept on which collocations were important and how they should be taught. (Some collocations were explicitly presented in some textbooks, but some were not.)

(d) Six English I textbooks followed the high frequency of use of collocations in the daily life of native speakers of English.

4.3.2. Pilot Study I-2: English I textbooks vs. English II textbooks

Pilot Study I-2 (Koya, 2004b) compares verb-noun collocations from four English I textbooks and four English II textbooks for Japanese upper secondary schools, and examines how the collocations in each textbook are treated. This is a follow-up to Pilot Study I-1 which revealed that the textbooks neglect a consideration of the fact that learners should develop their collocational knowledge in order to cultivate their communication ability. English II textbooks are used after English I textbooks and aim to further cultivate learners' comprehensive English ability. In other words, English II textbooks are expected to be more advanced in vocabulary, grammar, collocations, and the four skills (speaking, listening, reading and writing). Therefore, Pilot Study I-2 analyzes the treatment of collocations in both textbooks, following Pilot Study I-1.

Three research questions are postulated:

1. Do English II textbooks have any general concepts and a consensus on what kind of collocations and how many of them should be taught?
2. Does the choice of collocations used in English II textbooks for Japanese upper secondary schools refer to the collocations that are frequently used in major corpora such as the Bank of English?
3. Do English II textbooks have many collocations based on those presented in English I textbooks?

In order to compare English II textbooks with English I textbooks, English II textbooks by the same publishers were chosen: *Creative, One*

World, Royal English, and Sunshine.

Ninety-four target verb-noun collocations were selected (see Table 12). In order to do this, only verbs and nouns which commonly appeared in all the target textbooks were extracted and words connected with the common verbs or nouns in collocations were found, referring to *COBUILD English Collocations on CD-ROM* and *the BBI Dictionary of English Word Combinations* (Benson et al., 1997). The following are the 94 target verb-noun collocations.

Table 12. Verb-noun collocations selected in Pilot Study I-2

achieve success / attract attention / break deadlock / bring end / bring peace / carry weight / catch breath / catch bus / catch eye / catch fire / catch glimpse / catch train / catch train / change attitude / cut cost / cut price / cut rate / cut tax / draw attention / draw attention / draw conclusion / focus attention / get attention / get call / get idea / get rid / have conversation / improve image / keep eye / lose sight / lose weight / make appearance / make call / make contact / make conversation / make decision / make difference / make friend / make love / make money / make name / make progress / make sense / make success / make use / make visit / make way / meet need / meet requirement / meet standard / pay attention / pay visit / play part / play role / put end / put money / put pressure / raise money / reach agreement / reach final / reach point / reach stage / run business / run company / run country / set stage / show courage / stand chance / stand chance / stand trial / take account / take action / take advantage / take attitude / take boat / take bus / take care / take chance / take control / take hand / take holiday / take idea / take look / take part / take picture /take place / take time / take train / take turn / take vacation / take walk / take year / turn attention / turn attention

Collocations were analyzed by the means of TXTANA, a concordance software program and the results were as follows:

(a) The collocations as a whole were different with each of the four different English II textbooks.

(b) All the target textbooks paid little attention to collocations: Only a few were treated among them.

(c) The target textbooks did not refer much to the collocations which were frequently used in the Bank of English.

(d) Each collocation appeared only once or twice in the target textbooks.

(e) There was not so much difference between total number of collocations in English I and English II textbooks.

(f) None of the English II textbooks had a concept to build up the learners' collocational knowledge by repeating the use of selected collocations.

4.3.3. Pilot Study I-3: Revised English I textbooks vs. former English I textbooks

Pilot Study I-3 (Koya, 2004a) compares verb-noun collocations from four revised English I textbooks and four former English I textbooks for Japanese high school students and suggests an effective way of collocation teaching with the new textbooks in the classrooms.

This is a follow-up to Pilot Study I-1 and I-2, which revealed that collocations were depreciatingly treated in English I and II textbooks, namely, collocations were not presented repeatedly, nor presented in the order of frequency. In 2003, the new government guidelines for foreign language teaching to upper secondary school students was implemented to further develop active communicative ability with a limited vocabulary (see Chapter 1). Many English I textbooks were rewritten in response to the new guidelines so that students could use them in 2003, while the old edition of English II textbooks were still being used for 11th graders at that time because the rewritten English II textbooks used after I textbooks would be used after 2004. Thus, in this study only the revised English I textbooks were examined to see if collocations were given more weight.

The following three research questions were set up.

1. What kind of collocations and how many are used in the revised English I textbooks?
2. How are the collocations presented in the textbooks?
3. What are the similarities and differences between collocations in the English I textbooks and their revised ones?

Targeted English I textbooks[2] were *Milestone English course* I, *One World English course* I, *Sunshine English course* I and *Unicorn English course* I. They are of the same level and the top four in use.

One hundred nineteen target verb-noun collocations were selected. In order to specify them, the following steps were taken. First, transitive verbs and nouns which appeared in all the target textbooks were extracted by means of KWIC concordance. Second, considering nouns in those V-N combinations as nodes, all the collocates were selected from *COBUILD English Collocations on CD-ROM*, which resulted in 204 collocations. Third, after those 204 collocations were checked if they were listed as collocations in *the BBI Dictionary of English Word Combinations* (1997) and *Oxford Collocations Dictionary for Students of English* (2002)[3], 105 collocations remained. Finally, 14 collocations that were listed in the glossaries in the

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[2] As a result of the implementation of the new government guidelines for teaching, new English I textbooks were rewritten rather than revising old ones.

[3] *COBUILD English Collocations on CD-ROM* (1995) and *Oxford Collocations Dictionary for Students of English* (2002) are corpus-based dictionaries, whose examples are taken from the Bank of English, which show high frequent word combinations used in the daily life of native speakers are not corpus-based. Both types of dictionaries were used to select collocations for this research based on the author's definition of collocation (See 4.2.)

back of the respective textbooks were added to those 105 collocations, amounting to 119 collocations.

In order to answer research question 3, 37 collocations in the former English I textbooks were added to the 119 collocations, resulting in total of 156 collocations, seen in Table 13.

Table 13 . Verb-noun collocations selected in Pilot Study I-3

achieve goal / ask question / break deadlock / build house / buy house / buy share / buy stock / carry weight / catch breath / catch bus / catch eye / catch fish / catch glimpse / catch train / change name / close eye / decide fate / deliver message / discuss issue / discuss matter / do research / draw line / eat food / face problem / find job / find way / follow example / follow path / get answer / get job / get message / get rid / give advice / give answer / give chance / give example / give information / give way / leave message / lose money / lose seat / lose sight / lose time / lose weight / make break / make change / make check / make decision / make difference / make face / make life / make love / make money / make point / make sense / make use / make way / meet requirement / meet standard / open door / open eye / play part / play role / produce result / put stop / raise money / reach point / read paper / receive message / receive support / receive treatment / see point / send letter / send message / send postcard / set example / set record / shed light / show talent / spend money / take account / take action / take advantage / take break / take care / take chance / take job / take look / take part / take place / take pleasure / take seat / take step / take time / take train / take turn / take walk / tell story / turn attention / win championship / win election / win game / win race / win seat / win title (give speech / lose temper / make call / make friend / make joke / make law / make mistake / make progress / make reservation / make speech / spend time / take pride / take picture / take test)[bring end / bring peace / catch breath / catch fire / change mind / cut cost / cut price / cut rate / cut tax / do job / draw attention / draw conclusion / get call / keep distance / keep eye / make visit / meet need / pay visit / put end /put money / put pressure / run business / run company / run country / set fire /set standard / solve problem / stand chance / stand trial / take boat / take bus / take holiday / take pick / take trip / take vacation / take years / tell difference]

( ) collocations listed in the glossary in the back of the targeted English I textbooks

[ ] collocations selected from the former textbooks

The results of analysis, by the means of TXTANA, are summarized as follows:

(a) All the target textbooks paid little attention to collocations: They treated few collocations.

(b) The target textbooks did not refer much to the collocations which were

frequently used in the Bank of English.

(c) Even collocations appearing in the textbooks were not repeated many times: Collocations were not treated from a pedagogical point of view.

(d) There was not so much difference of type, number and treatment of collocations between the former and the revised English I textbooks: Revised English I textbooks were not improved in terms of collocation.

(e) The collocations, as a whole, were different according to the former and revised four different English I textbooks.

4.3.4. Pilot Study I-4: History textbooks in the UK

Pilot Study I-4 (Koya, 2004c) extracts collocations from a history textbook for secondary school students used in the UK and compares them with those included in secondary school English textbooks in Japan. A UK history textbook was selected because it describes historical events and happenings in people's daily lives of the past in a natural phrases and collocations of native speakers of English unlike English language textbooks which focus on the language.

This research focused are the following four questions:

1. What kind of collocations are used in the history textbook?
2. How many collocations are used in the history textbook?
3. How often do the same collocations appear in the history textbook?
4. What are the differences between collocations in the UK history textbook and those in English textbooks in Japan?

Among many history textbooks used at different schools in the UK, the history textbook, *Contrasts and Connections,* was selected for the study for the following two reasons: it was a bestseller in the UK and it was compiled by the Schools Council[4] as a project of UK National Curriculum. This book covers the Roman Empire, Medieval Realms and Islamic Civilizations, from 500 BC to AD 1500 and reconsiders the nature of history and its relevance in secondary schools.

To compare with *Contrasts and Connections,* selected were four textbooks: *Milestone English course I, One World English course I, Sunshine English course I* and *Unicorn English course I.* They were newly published in 2003, in accordance with the government's guidelines issued by MEXT.

In order to specify collocations used in *Contrasts and Connections,* the following steps were taken. First all the nouns which appeared in the textbook were extracted by means of World Smith, a KWIC concordance software program. Second, the nouns which appeared more than six times were chosen and were arranged in descending order from those with the highest frequency to the lowest, resulting in 515 nouns. Third, using these nouns as nodes, the collocates (verbs) were selected with reference to *COBUILD English Collocations on CD-ROM* (1995), *Oxford Collocations Dictionary for Students of English* (2002) and *the BBI Dictionary of English Word Combinations* (1997). One hundred seventy noun-verb combinations

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[4] The School Councils in the UK is an organization which has been supported by the department for Education and Skills in the UK and accredited as a TA Headlamp Trainer. It also works in partnership with local education authorities. It set up the Schools History Project in 1972 to suggest suitable objectives for history teachers, to promote the use of appropriate materials and teaching methods for their realization, to reconsider the nature of history, and to provide the design of a syllabus framework which shows the uses of history in the education of adolescents.

were selected as collocations among these three dictionaries in order to answer the research questions 1 to 3 (see Table 14).

Table 14. Verb-noun collocations extracted from a history textbook in Pilot Study I-4

achieve success / add spice / ascend throne / build bridge / build castle / build mosque / buy property / buy stock / catch eye / change subject / climb mountain / close door / commit crime / commit sin / create impression / cut tax / cut wood / deliver message / deny charge / develop skill / discuss matter / do business / do duty / draw map / drill hole / drink beer / drop charge / eat meal / employ tactics / end reign / erect statue / evade capture / exercise judgment / exert influence / express anger / express opinion / face charge / find evidence / find solution / find way / forgive sin / get answer / get impression / get job / get letter / get message / get permission / get picture / give advice / give answer / give birth / give evidence / give impression / give protection / hold meeting / impose sentence / improve condition / keep faith / launch attack / launch crusade / learn language / learn skill / leave mark / leave message / leave school / lock door / lock gate / lose faith / make advance / make contact / make copy / make decision / make difference / make dough / make face / make friend / make hole / make impression / make journey / make judgment / make list / make love / make mark / make meal / make mention / make money / make payment / make profit / make room / make rule / make sacrifice / make statement / make success / need skill / offer advice / offer protection / open door / open mouth / paint picture / pass judgment / pass law / pass sentence / pay rent / pay tax / play game / play part / pose threat / provide protection / publish book / put clock / put faith / raise money / raise tax / reach stage / receive letter / receive payment / resolve difference / run race / run riot / send letter / send message / set example / set record / set scene / set stage / shake head / shoot arrow / show loyalty / show mercy / sign document / speak language / spend money / spend night / spend time / stand trial / take action / take advantage / take advice / take attitude / take bath / take boat / take care / take charge / take course / take decision / take effect / take hand / take medicine / take part / take picture / take place / take position / take possession / take time / take view / take walk / tell difference / tell tale / toss coin / turn eye / turn head / use influence / use language / use method / use tactics / waste time / win game / win race / win victory / write letter

In order to answer research question 4, collocations were selected in the following steps from the four English I textbooks in Japan. First, transitive verbs and nouns which appeared in the target textbooks were extracted by means of a KWIC concordance. Second, considering them as nodes, the collocates were selected from *COBUILD English Collocations on CD-ROM* (1995), resulting in 204 collocations. Third, by deleting those which were not listed in both *the BBI Dictionary of English Word Combinations* (1997) and *Oxford Collocations Dictionary for Students of English* (2002), 105

collocations remained. Finally, 15 collocations listed in the glossaries of the respective textbooks were added, making the total of 120 collocations (see Table 15).

Table 15. Verb-noun collocations extracted from English I textbooks in Pilot Study I-4

achieve goal / ask question / break deadlock / build house / buy house / buy share / buy stock / carry weight / catch breath / catch bus / catch eye / catch fish / catch glimpse / catch train / change name / close eye / decide fate / deliver message / discuss issue / discuss matter / do research / draw line / eat food / face problem / find job / find way / follow example / follow path / get answer / get job / get message / get rid / give advice / give answer / give chance / give example / give information / give way / leave message / lose money / lose seat / lose sight / lose time / lose weight / make break / make change / make check / make decision / make difference / make face / make life / make love / make money / make point / make sense / make use / make way / meet requirement / meet standard / open door / open eye / play part / play role / produce result / put stop / raise money / reach point / read paper / receive message / receive support / receive treatment / see point / send letter / send message / send postcard / set example / set record / shed light / show talent / spend money / take account / take action / take advantage / take break / take care / take chance / take job / take look / take part / take place / take pleasure / take seat / take step / take time / take train / take turn / take walk / tell story / turn attention / win championship / win election / win game / win race / win seat / win title (give speech / lose temper / make call / make friend / make joke / make law / make mistake / make progress / make reservation / make speech / spend time / take picture / take pride / take test / take trip)

( ) collocations listed in the glossaries in the back of the targeted English I textbooks

The result of analysis by the means of TXTANA were as follows:

(a) The history textbook in the UK included such collocations as *play part, make money,* and *give birth* which were used in the present daily life in the UK and which were common in the Japanese English I textbooks.

(b) Some unique collocations, *build castle, launch crusade*, and *use tactics* were found to be related to events in world history.

(c) Collocations appearing in the textbooks in Japan were not repeated many times: more than half were repeated only once.

(d) The number of collocations appeared in the UK history textbook and the Japanese English I textbooks was almost the same.

(e) Collocations in the UK history textbook were a half of those in the English I textbooks, perhaps because objects such as *train* and *bus* did not exist in the periods covered in the history textbook.

4.3.5. Summary of the four pilot studies

The results of the four pilot studies on collocation were summarized as follows:

(a) ***Collocations were little focused on in English textbooks for upper secondary school students in Japan.***

According to Pilot Studies I-1, I-2 and I-3, only a few collocations were treated in all the examined English textbooks (revised and former English I textbooks and former English II textbooks). In short, English textbooks for upper secondary school students paid little attention to collocations.

(b) ***English textbooks for upper secondary school students had no concept and no consensus on how basic collocations should be taught.***

Pilot Studies I-1, I-2 and I-3 found that there was much difference in type, number and treatment of collocations among the former English I textbooks, among the revised English I textbooks, and among the former English II textbooks. Although it was explicitly written in the government guidelines for foreign language teaching that basic collocations should be taught, no textbooks examined had clear ideas of them.

(c) ***English textbooks for upper secondary school students lack pedagogical consideration regarding collocations.***

The result of Pilot Studies I-2 and I-3 showed that collocations occurring in each textbook were not repeated. Pilot Study I-3 also revealed that collocation grading was not taken into consideration in compiling English I and English II textbooks. Therefore, in terms of collocations English textbooks for secondary school students were not appropriate to facilitate the students' effective learning.

(d) ***It was not confirmed whether collocations appearing in English textbooks for Japanese upper secondary school students coincided with the high-frequency collocations in the Bank of English.***

While Pilot Study I-1 proved that some collocations found in six English I textbooks in Japan were the same as those in the Bank of English, Pilot Studies I-2 and I-3 showed the opposite: The target textbooks did not refer much to the collocations which are frequently used in Bank of English. Further research should be conducted to confirm these results.

(e) ***Some collocations were used in both the Japanese English I textbooks and the UK history textbook, while some topic-oriented collocations occurred only in the history textbook.***

Pilot study I-4 showed that some collocations such as *play part* and *give birth* were common in the history textbook and English I textbooks, although the tokens and the types of words were different between them and some unique collocations such as *build castle* and *launch crusade* were

used in the history textbook. There was possibility that some common collocations were frequently used regardless of topics in textbooks of different genres (such as the history textbook and English I textbooks in Pilot Study I-4), but that will be investigated in the next chapter.

4.3.6. New research questions raised by the four pilot studies

After the four pilot studies revealed the present states of the poor collocation treatment in English textbooks for upper secondary school students, the following limitations were recognized:

1. Collocation dictionaries were used to analyze the status quo of collocations used by native speakers of English, but we would need to access a large corpus of native speakers of English in order to identify basic collocations for Japanese learners of English.
2. To select target collocations only several textbooks and collocation dictionaries were used. We would need to refer to some word lists necessary for Japanese learners of English and access a large corpus of native speakers of English in order to identify basic collocations for Japanese learners of English.
3. Only the reality of collocation treatment in Japan was investigated. We should examine features of high-frequency collocations used by native speakers of English in order to identify basic collocations for Japanese learners of English.

These limitations are related to methodological concerns of collocational study. To improve these insufficient methods, more systematic research

with a large corpus and word lists are needed to answer main question, "What are basic collocations?"

Furthermore, the last limitation, a reference to the reality of collocation use by native speakers of English, is especially important. This is because collocation is strongly related to culture and collocations have cultural connotations according to McCarthy (2004, August). He mentions that, because of the connotative features, collocations are regarded as right or wrong by native speakers of English and the clarification of the mechanism has been tackled by few researchers. Dromou referred by McCarthy (2004, August) conducted a survey on the reaction of native speakers of English to collocations produced by non-native speakers of English. The finding was that native speakers of English never accepted those collocations when they were introduced as non-native speakers'. This shows that native speakers of English take only their collocations to be acceptable and only they can create collocations. Crystal (1992) also defines collocational competence as one which only native speakers can establish or confirm.

Some researchers criticize corpus study because corpus is an incomplete and lopsided record of fact. Cook (2003, pp. 104-111), for example, lists several reasons to support this idea. One is that even the largest corpora of English are still smaller than the average adult user's experience of the language. The second is that many English corpora are dominated only by native speakers of English, who are considered to be real and authentic language users. The third is that corpus contains information about production but not about reception. The final one is that although corpus linguists are fond of observing the commonest uses of words which are not the same as their standard definitions, they do not reflect them in their

dictionary. For example, the *suppose* meaning of *I bet* is used more frequently than the *wager* meaning of it, but the latter is still given as the first meaning of bet in the COBUILD dictionary.

Although some shortcomings of corpus study should be taken into consideration, the present writer recognizes that it is useful in collocation study because of collocation features and no alternative ways other than it. This research takes examining the reality of collocation use by native speakers of English in a corpus to be a first step which leads to the answer to "what are basic collocations for Japanese learners of English?"

Then, some new research questions have brought up the following:

"What are basic collocations?"

1. What are high-frequency collocations in large corpora collected from native speakers of English?
2. What are features of those high-frequency collocations by native speakers of English?
   - 2a. Which levels of words are included in the high-frequency verb-noun collocations, in the word list of basic words for Japanese learners of English?
   - 2b. Are high-frequency collocations of native-speaker English related to topics?
3. How are collocations presented in English textbooks for upper secondary school students in Japan deviated from those of native-speaker English?

4.4. Pilot Study II: Empirical research

There has been a lot of empirical research to clarify learners' mechanism

of collocation acquisition as were referred in Chapter 3. Some research has been carried out by contrastive analysis between L1 and L2 and they stress the influence of L1 on the acquisition and the use of collocations (Bahns and Eldaw 1993, Biskup 1992, Caroli 1998, Eldaw 1993, Granger 1998, Nesselhauf 2003). In other research, the findings showed not only L1 negative transfer but some other factors such as overgeneralization and inadequate instruction learners receive (Blum and Levenston 1978, Dechert and Lennon 1989, Elyildirm 1997, Fayez-Hussein 1990, Gitsaki 1999, Kellerman 1979, Lennon 1996). These researchers assume that learners need to develop collocational competence in order to gain overall English proficiency. In Japan, however, there has been little empirical collocation research conducted to date. None of the collocation acquisition by Japanese learners of English have been clarified, although more Japanese researchers have accepted the importance of learners' collocation acquisition. Therefore, a pilot study was conducted on collocation acquisition by Japanese learners of English.

4.4.1. Pilot Study II-1

Pilot Study II-1 (Koya, 2003a) examines the process of productive and receptive collocation acquisition at different stages of language learning and factors influencing the process by focusing on verb-noun combinations as is mentioned in 4.3. In order to conduct a survey on collocations, three specific research questions were raised as follows:

1. What developments occur in learners' productive and receptive knowledge of collocations and in their vocabulary size at different stages

of language learning? (How are collocational knowledge and general vocabulary knowledge related to one another in the same individual? Will the learners' collocational knowledge expand at the same rate as their knowledge of vocabulary in general?)

2. How are the receptive and the productive knowledge of collocations acquired with regard to different types of collocations (directly and non-directly translated collocations) at different stages of language learning (different levels of vocabulary)? Is the different extent of the acquisition related to L1 features in selecting possible collocations for a given L2 node at different stages of L2 learning?
3. How important is collocational knowledge for Japanese learners of English in the acquisition of English communication skills? (In view of the creative potential of language, is it not usually possible to paraphrase one's way around the tricky terrain of collocations?)

The subjects were 93 first-year university students in Japan. They had received classroom instruction in EFL for a period of at least six years. The first language of all the students was Japanese.

Three kinds of tests were carried out: a general vocabulary test, a productive collocation test, and a receptive collocation test. For the general vocabulary, the Vocabulary Levels Test designed by Nation (1990) was used. The 93 subjects were divided into three groups as is given in Table 16.

Table 16. Three groups of subjects

Categorization	Explanation of each group	No. of subjects
1000 word level group	students whose score is less than 12 at 2000 level test	30
2000 word level group	students whose score is less than 12 at 3000 level test	30
3000 word level group	students whose score is less than 12 at 5000 level test	33

The productive collocation test which the present researcher devised used 26 target collocations of verb-noun combinations which were selected from *The Crown I textbook* and which were checked if they are included in *the BBI Dictionary of English Word Combinations* (Benson et al., 1997) and *COBUILD English Collocations on CD-ROM* (1995), and if they are accepted by three native speakers of English from the US who are teaching English at some universities in Japan. The 26 collocations were divided into two groups to see influence by L1: 13 collocations which have Japanese equivalents and 13 collocations which do not have direct translations from English into Japanese as is shown in Table 17.

Table 17. Selected collocations (a) with a Japanese equivalent and (b) without a Japanese equivalent

(a) collocations with a Japanese equivalent	(b) collocations without Japanese equivalent
break the law	make every effort
break one's promise	eat soup
lose heart	do harm
take a vacation	keep one's promise
win a contest	make a speech
do one's homework	set a good example
pass the exam	take a walk
pay tax	take medicine
make money	keep a diary
do business	make mistakes
open one's eyes	make some progress
save the life	make a copy
play cards	make no difference

The productive collocation test is a translation task into English of 26 Japanese sentences, which include selected collocations. Words in the sentences are limited to the basic 700 words for lower secondary school students listed by MEXT.

The receptive collocation test used the same collocations in the productive collocation test. The test format was multiple-choice and 26 sentences were prepared, in which the missing main node was to be provided by the subjects. There were three choices in each question and all of the distracters were synonymous words from a dictionary of English synonyms and antonyms and checked with *the BBI Dictionary of English Word Combinations* (1997) to make sure they were not a collocational combination. The students were asked to choose the answer which they thought was right from the three choices.

As for the procedure, 93 subjects took these three kinds of tests during a regular class. The Vocabulary Levels Test and the productive collocation test lasted for 40 minutes and the receptive collocation test for 20 minutes. The students were not allowed to use any dictionaries to check the meaning of words. Moreover, they were not informed about the true purpose of the three tests, but were simply told that their vocabulary proficiency would be tested. After finishing all the tests, the answer sheets were distributed to students, because it was felt that they should learn their results from an educational perspective.

The data from the three kinds of tests were marked according to two scoring criteria: a binary criterion and a degree criterion. A binary criterion was applied to the Vocabulary Levels Test and the receptive collocation test and the items were simply scored as correct or incorrect, because both the tests have a multiple-choice format. A degree criterion was applied to the productive collocation test because it is a translation task and a variety of answers was expected. 26 sentences including 26 collocations were rated with the following marks:

0 = incorrect answers

1 = correct answers, which include expected collocations in the sentences

2 = correct answers which did not include expected collocations in the sentences, but which were regarded as acceptable ones

3 = blank

4 = incorrect answers, which are affected by L1[5]

The answers given by the subjects were checked with *the BBI Dictionary of English Word Combinations* (1997) and then evaluated by three native speakers of English of the US.

The data gathered from the subjects' completion of the three kinds of tests were submitted to statistical analysis. SPSS, a statistical software tool, was used in order to analyze all the data. The results analyzed by means of SPSS can be summarized for each question as follows:

(a) Research question 1:

As predicted in research question 1, the tests proved that the more vocabulary knowledge learners had, the more collocational knowledge in both production and reception were acquired. In other words, there was a close correlation between the learners' general vocabulary knowledge and the collocational knowledge.

(b) Research question 2:

The learners' vocabulary became richer, as more receptive and productive knowledge of collocations including both direct and non-direct

[5] These are incorrect answers which shows direct translation from Japanese and had been made by many Japanese learners of English in English classes.

translations were acquired. Considering the influence from L1 negative transfer, higher level students tended to resort to L1 in selecting possible collocations for a given L2 node, which was the opposite of what previous research (Caroli, 1998) and we expected. This result is related to another result that lower level students much more easily gave up producing sentences when they did not know some words or verb-noun combinations

(c) Research question 3:

It seemed to be very difficult for any level student to paraphrase or describe answers with synonymous words when they did not know the target collocations. Moreover, they preferred refraining from giving any answer that might be a mistake. It could be said that they were reluctant to take risks.

4.4.2. New research question raised by Pilot Study II

After the Pilot Study II-1 was conducted in order to examine the mechanism of the development of collocational knowledge of Japanese learners of English, it was found that the Vocabulary Levels Test, the selected collocations, and the division of the selected collocations need to be further specified to make them more reliable.

Nation's Vocabulary Levels Test was used to group the subjects based on their vocabulary levels. This was because the test had proved to be a sufficiently useful and reliable diagnostic tool by Laufer (1992) and Read (1988). However, Nation's test was revised into a more suitable one for

Japanese learners of English by Mochizuki (1998)[6] and it has proved to be a more reliable test by some validity tests. In order to get a more dependable score, Mochizuki's test should be used.

The 26 target collocations were selected from one of English textbooks for 10th graders, *the Crown I textbook*[7]. This means that they were not studied by all the subjects. This is because any textbook can be selected by teachers at different schools among many textbooks authorized by MEXT and there is a great difference of type, number and treatment of collocations between textbooks. In order to improve these inadequate factors, basic collocations whose constituents are basic words expected to be learned by secondary school students should be identified and targeted.

The 26 target collocations were divided into two in terms of whether they have a Japanese equivalent or not. This is one of many perspectives to analyze collocations and other norms were pointed out by Blum and Levenston (1978), Dechert and Lennon (1989), Elyildirm (1997), Farghal and obidedat (1995), Fayez-Hussein (1990), Gitsaki (1999), Kellerman (1979), and Lennon (1996). They were mainly shortage of general vocabulary knowledge, L1 negative transfer, semantic transparency of collocations, collocational restriction, core meaning of verbs, unfamiliarity of collocational structure and they should be taken into consideration in order to conduct more detailed and meticulous research.

In the consideration of the improvements of Pilot Study II-1 written above, the following new research questions were added: What influences learners' collocational knowledge? Shortage of general vocabulary

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[6] After I conducted this pilot study, I was aware of Mochizuki's test.

[7] This pilot test was based on my MA thesis (1999) completed in the University of Reading. When I was in the UK, I got only *the Crown I textbook,* which led me to a limited pilot study.

knowledge, L1 equivalence, semantic transparency of collocations, collocational restriction, core meanings, collocational structure?

Chapter 5.
Methodology: Phase I. Corpus-based research

5.1. Introduction

This chapter examines high frequency collocations of native speakers of English in means of native English corpora to identify basic and important collocations which Japanese secondary school students are to learn.

The first section mentions the purpose of this research and sets up research questions. The second section refers to three corpora used in this research—the British National Corpus, the TIME corpus and the English I textbook corpus – and discusses why they were selected. The third section presents a selection of basic nouns to be learned by Japanese learners of English by using one word list, *the JACET List of 8000 Basic Words* (2003) and a selection of verbs to be collocated with the nouns, by using four collocation dictionaries: *COBUILD English Collocations on CD-ROM* (1995), *Oxford Collocations Dictionary for Students of English* (2002), *the BBI Dictionary of English Word Combinations* (1997) and *The Kenkyusha Dictionary of English Collocations* (1995). The final section of the chapter demonstrates the procedure of this research.

5.2. Purpose and research questions

The purpose of this research is (a) to examine which collocations are frequently used by native speakers of English in order to answer the research question, "What are the basic collocations?" and (b) to investigate what collocations occur in English textbooks for secondary school students in Japan and how they are deviated from the high frequency collocations by

native speakers of English. Identifying the reality of usage of collocations by native speakers of English is the first step in collocation study, which leads to the selection of collocations to be learned by Japanese learners of English in terms of their purpose of learning English (see section 4.3.6.).

Japanese secondary school students learn English to develop general English ability, not English for specific purposes, focusing on practical communication ability and to foster a positive attitude toward communication through English. In order to develop general communicative ability, the acquisition of basic collocations is prerequisite and it is supported by Alexander (1984), Ellis (2001), Korosadowicz-Struzynska (1980), Lewis (1993, 2000), Hill (2000), McCarthy (1984), Nattinger and DeCarrico (1992), Pawley and Syder (1983), Yorio (1980) (see section 2.4.).

This chapter presents a larger scale research of the four pilot studies. More precise methodology was adopted, more carefully selected collocations were used and a larger corpus of samples of native-speaker English was used to analyze the treatment of collocations in English textbooks for secondary school students.

For this study, four research questions were set up:

"What are basic collocations?"

1. What are high-frequency collocations in large corpora collected from native speakers of English?
2. What are features of those high-frequency collocations by native speakers of English?

   2a. Which levels of words are included in the high-frequency verb-noun collocations, in the word list of basic words for Japanese learners of

English?

2b. Are high-frequency collocations of native-speaker English related to topics?

3. How are collocations presented in English textbooks for upper secondary school students in Japan deviated from those of native-speaker English?

5.3. Material: Corpus

Three corpora were used to examine high-frequency collocations of native-speaker English and those in English textbooks for Japanese upper secondary school students.

5.3.1. British National Corpus (BNC)

The British National Corpus (BNC) was selected in order to extract target collocations. It is one of the largest monolingual British English corpora in the world, containing some 100 million sample words of both written and spoken English. The reason this corpus was selected was that the whole text was easily obtained, via computer access and it had three main outstanding features as follow:

1. ***The BNC comprises 100,106,008 words of present-day English.***

It comprises about 100 million British English words of the late 20th century, reflecting the present daily use of the language. In fact, all imaginative texts are dated no earlier than 1960, all informative texts 1975 and all spoken texts 1991. As a whole, a large majority of BNC texts are dated from the period 1985-1994.

2. ***The BNC contains a wide range of both spoken and written British English.***

It contains spoken text (10%) and written text (90%). The spoken text was extracted from a large amount of unscripted informal conversation, recorded by volunteers selected from different ages, regions and social classes in all kinds of different contexts, covering from formal government meetings to radio shows and sports commentaries. On the other hand, written texts were extracted from writings by all ages and for all interests—academic books and popular fiction, published and unpublished letters and memoranda, school and university essays, and other kinds. Although spoken text and written text are unbalanced, the BNC itself claims that it is a balanced corpus of daily language use, because it covers a large variety of texts.

3. ***The tagging of the BNC is carried out with a version of the CLAWs, a stochastic part-of-speech tagger developed at the university of Lancaster.***

All the 4,124 texts of the BNC are segmented into six and a quarter million sentence units, of which parts of speech are all classified by the CLAWs, automatic tagging software (Garside & Smith, 1997) and Template Tagger (Fligelstone, Rayson & Smith, 1996), using a set of 134 detailed part-of-speech dictionaries. The classification scheme used for the corpus differentiates some 65 parts of speech, which are described in the accompanying documentation. Therefore, with SGML Aware Retrieval Application (SARA), a concordance software program, it is easy to search

rapidly through the BNC for examples of specific words and the high-frequency combinations and so forth, which can be sorted and displayed in a variety of different formats.

Thus, the BNC reflects samples of British English used by thousands of British people.

5.3.2. Making the TIME corpus

TIME (American edition) was also selected as a written English database of native speakers of English in order to extract target collocations. This weekly magazine has one of the largest circulations in the world and an audience of more than 300 million around the world. It also covers many kinds of topical news such as world, science & technology, art & entertainment, and it attracts many readers. As the English language used in *TIME* is regarded as the standard North American English, the TIME corpus offers the standard North American English collocations, while the BNC provides the standard British English collocations.

English of 17 volumes, December 1 in 2003 to March 29 in 2004, of *TIME* were collected and computerized into one large corpus. Two methods, an optical character reader and keyboarding were used to process the selected *TIME* English onto the computer.

As the data was in printed form, the optical reader was used to store the majority of the data on the computer. Advertisement parts and pages were omitted because they were not relevant for this collocation research. The size of the TIME corpus results is shown in Table 18.

Table 18. Tokens and types in *TIME*

TIME	
(from December 1 in 2003 to March 29 in 2004, total 17-volumes)	
Total tokens	453117 words
Total types	36099 words

Because *TIME* has more than 20 categories, the corpus was recategorized into main topics and subordinate topics as in Table 19 below:

Table 19. Four main categories

Main topics	Subordinate topics
Social science	Nation, World, Business, Society, Crime, Religion, Education
Science & Technology	Medicine, Space, Time in Depth, Health, Technology, Environment
Art & Entertainment	Book, Theater, Movie, Music, Television, Sports
Others (essays & opinions)	Essays, Interviews, Letters, Notebook, People, Your time, Life style, Viewpoints

5.3.3. Making the English I textbook corpus

English I textbooks for Japanese 10th graders were chosen for this investigation. The reason they were selected is related to the purpose and role of English I classes. According to the government guidelines for foreign language teaching, English I and Oral Communication I are obligatory and both of them are required to teach at secondary schools with the MEXT-authorized English I textbooks and Oral Communication I textbooks. English I textbooks are more appropriate for this study because they aim at the overall development for the basic skills (speaking, listening, reading and writing), while Oral Communication I focuses on spoken English ability.

English I textbooks are edited to develop students' basic abilities to comprehend what they listen to or read and to convey information and ideas by speaking and writing. According to the latest government guidelines for

foreign language teaching published by MEXT, words 10th graders are expected to learn is 1300, compared with 1400 in the former guidelines implemented in 1989-2002.

Among the many textbooks approved by MEXT, four textbooks *Milestone English course I, One World English course I, Sunshine English course I* and *Unicorn English course I* were selected in that they are the top four sellers at schools and found to be of the same level. The English language used in these four English I textbooks was computerized in the same way as that in *TIME*. The total tokens and types are shown in Table 20 below:

Table 20. Tokens and types in four English I textbooks

Targeted four English I textbooks				
	Unicorn I	Milestone I	Sunshine I	One World I
Total tokens	7910	7144	5978	6290
Total types	1627	1509	1394	1399

5.4. Selection of collocations

In this analysis, verb-noun collocations were targeted because they are most frequently used combinations, are regarded as key combinations in producing clauses and sentences, and they are the most often selected in the previous empirical research (Bahns and eldaw, 1993; Caroli, 1998; Nesselhauf, 2003).

In specifying verb-noun collocations which are used in the BNC, TIME and English I textbook corpora, we used one word list needed for Japanese learners of English *the JACET List of 8000 Basic Words* (2003)(*JACET 8000*), and four collocation dictionaries, *COBUILD English Collocations on CD-ROM* (1995), *Oxford Collocations Dictionary for Students of English* (2002), *the BBI Dictionary of English Word Combinations* (1997) and *The*

Kenkyusha Dictionary of English Collocations (1995).

JACET 8000 is a latest word list combining the scientific viewpoint and the educational viewpoint. It not only refers to the rank of words calculated from the data of the BNC and a set of various sub corpora, such as a TOFEL corpus and a science magazine corpus, but also modifies the rank of words by examining how they are used in school textbooks. The word list made in this way consists of the basic 8000 words for Japanese learners of English and is ranked from the first 1000 basic words (Level 1) to the 7001-8000 words (Level 8). This scientific and educational word list is important to choose basic collocations for Japanese learners of English, because they have to consist of basic words for them. Therefore, all the nouns listed in this word list were extracted, amounting to 4986 nouns.

All the verbs collocated with the selected 4986 nouns in *JACET 8000* were checked if they were included in the four collocation dictionaries, resulting in 1572 collocations (Appendix A). The reason these four collocation dictionaries were used in this analysis is that they were the most representative collocation dictionaries, whether they were corpus-based or non corpus-based dictionaries. *COBUILD English Collocations on CD-ROM* (1995) and *Oxford Collocations Dictionary for Students of English* are corpus-based dictionaries (2002), with examples taken from the *Bank of English*, which shows high frequent word combinations used in the daily life of native speakers of English. *The BBI Dictionary of English Word Combinations* (1997) is however, based on the native speakers' intuition, and is not corpus-based. *The Kenkyusha Dictionary of English Collocations* (1995) has been one of the major collocation dictionaries in Japan since it was first published in 1939 and the present edition contains 380,000 word

combinations. Thus, these four dictionaries were used in order to select well-balanced collocations based on both corpus and the intuition of native speakers of English.

Table 21 shows the levels of nouns extracted from *JACET 8000* and levels of verbs picked up from the four collocation dictionaries.

Table 21. Levels of nouns and verbs according to *JACET 8000*

Node's level	Collocate's level	No. in each level	Node's level	Collocate's level	No. in each level
Level 1	Level 1	337	Level 2	Level 1	294
	Level 2	36		Level 2	47
	Level 3	6		Level 3	12
	Level 4	8		Level 4	11
	Level 5	3		Level 5	2
	Level 6	0		Level 6	5
	Level 7	0		Level 7	2
	Level 8	0		Level 8	1
	out of level	1	out of level		13
	Total	391		Total	387
Level 3	Level 1	190	Level 4	Level 1	146
	Level 2	39		Level 2	22
	Level 3	6		Level 3	8
	Level 4	8		Level 4	8
	Level 5	8		Level 5	6
	Level 6	4		Level 6	1
	Level 7	7		Level 7	1
	Level 8	0		Level 8	0
	out of level	18		out of level	2
	Total	280		Total	194
Level 5	Level 1	95	Level 6	Level 1	63
	Level 2	19		Level 2	19
	Level 3	6		Level 3	2
	Level 4	6		Level 4	3
	Level 5	5		Level 5	4
	Level 6	1		Level 6	1
	Level 7	1		Level 7	1
	Level 8	1		Level 8	0
	out of level	6		out of level	2
	Total	140		Total	95
Level 7	Level 1	43	Level 8	Level 1	13
	Level 2	10		Level 2	2
	Level 3	2		Level 3	1
	Level 4	3		Level 4	3
	Level 5	2		Level 5	1
	Level 6	1		Level 6	0
	Level 7	1		Level 7	0
	Level 8	0		Level 8	0
	out of level	2		out of level	1
	Total	64		Total	21
				TOTAL	1572

5.5. Procedure

First, the BNC was installed in my computer, then the TIME corpus and the English I textbook corpus were completed, and a selection of targeted collocations was finished. Then, whether the target collocations occurred in these three corpora was examined. As for span size, four words on either side of node are considered appropriate in this investigation, following previous research by Berry-Roghe (1973) and Jones and Sinclair (1974)(see section 2.3.3).

Collocations in the BNC were retrieved with SARA concordance software. Examination of the frequency of collocates for given nodes was conducted by using a collocation dialog box in SARA. In addition to the frequency check of the target collocations, the z-score was used, which is one of the most reliable statistical measures in calculating the strength of combinations between nodes and collocates within a certain span. The figure shows that the higher the z-score is, the more significant the clustering is. According to Barnbrook (1996), more than a *three* z-score is significant as a collocation.

Target collocations in the TIME corpus and the English I textbook corpus were retrieved with TXTANA, a concordance software, to show whether a keyword collocates with certain other words within a certain span of context in a set-up corpus. In addition to the lemmatized forms of target verb-noun collocations (e.g. *make mistake*), infinitive and -ing forms of verbs (e.g. *to make a mistake* and *making a mistake*), and plural forms of nouns (e.g. *make mistakes*) were shown as occurrences of the related types of combinations in the TIME corpus and the English I textbook corpus. Checking the context where target collocations occur and deleting inappropriate examples that target node and the collocate occur in different sentences in reference to

z-scores, the search for 1572 target nodes and the collocates was carried out. The procedure is summarized in Table 22.

Table 22. Procedure of the corpus-based research

Step 1		Install the BNC and make the TIME corpus and the English I textbook corpus
Step 2		Select target verb-noun collocations among verb-noun combinations
	(1)	Extract all the nouns from *JACET 8000* (No. of nouns = 4987)
	(2)	Find verbs collocated with 4967 nouns in four collocation dictionaries (No. of verb-noun collocations = 1572)
Step 3		Tabulate the frequency of 1572 verb-noun collocations in the BNC by SARA and in the TIME corpus and the English I textbook corpus by TXTANA. Calculate the z-score in the BNC.

Chapter 6. Result and discussion
Phase I. Corpus-based research

6.1. Introduction

This chapter identifies basic collocations for Japanese learners of English. In order to do so, frequency collocations by native speakers of English are referred to and how collocations in English I textbooks are deviated from a standard of native-speaker collocation is analyzed. The source is the BNC, the TIME corpus and English I textbook corpus. The first section analyzes selected collocations in the BNC as the standard Britain English and those in the TIME corpus as the standard North American English. It then examines the treatment of collocations in the English I textbook corpus for 10th graders in Japan in terms of collocations of native-speaker English in order to identify what collocations would be basic for Japanese learners of English at the early stage.

The second section discusses how the above corpora analysis should be interpreted and what collocations should be selected for Japanese learners of English to develop a better command of English from pedagogical perspective.

6.2. Results

6.2.1. Analysis of the BNC

SARA, a concordance software, was used to calculate the frequency of 1572 target collocations in the BNC and the z-score per collocation. As is seen in Table 23, V-N combinations regarded as collocations were 1502 in the BNC as the z-score of 70 V-N combinations is under *three* (＜3.0), indicating

that the combinations are clustered weakly and they are not judged as collocations by Berry-Rogghe (1973) and Bahnbrook (1996). Berry-Rogghe claims that for a collocation to be statistically significant at the one per cent level, the z-score should be at least 2.576. Bahnbrook also has almost the same opinion that a useful cut-off measure for significance in a z-score test is around *three*, so that the word combinations under *three* should not be interpreted as collocations. According to these two papers, 1502 V-N combinations were considered as collocations in the BNC.

Selected target collocations were checked not only with two corpus-based collocation dictionaries, but also with two native speakers' intuition based collocation dictionaries, because collocations are closely related to the culture where the language is used.

Table 23. Number of V-N collocations in the BNC

z-score under 3.0 (＜3.0) (including no frequency collocations)	70 9
No. of V-N collocations in the BNC	1502

Table 24 shows frequency of 1502 collocations in the BNC and the levels of nodes and collocates per 100 collocations. Level 1 (L1) means the node and the collocate of a collocation consist of the first 1000 basic words in accordance with *JACET 8000* (2003). In cases where either the node or the collocate of a collocation is found the higher levels, they belong to that level. For example, when a collocation consists of L1 node and level 2 (L2) collocate, it is regarded as L2 collocation, because an individual who knows more than 2000 words is most likely to understand and produce L1 node and L2 collocations.

Table 24. Level of the nodes and collocates per 100 collocations in the BNC

BNC		**L1**	L2	L3	L4	L5	L6	L7	L8	TOTAL	**L1+L2**
～100	No.	**78**	19	0	2	0	0	0	0	99	**97**
	%	**78.0**	19.2	0.0	2.0	0.0	0.0	0.0	0.0	100.0	**98.0**
～200	No.	**56**	31	5	7	1	0	0	0	100	**87**
	%	**56.0**	31.0	5.0	7.0	1.0	0.0	0.0	0.0	100.0	**87.0**
～300	No.	**42**	39	7	12	0	0	0	0	100	**81**
	%	**42.0**	39.0	7.0	12.0	0.0	0.0	0.0	0.0	100.0	**81.0**
～400	No.	**39**	33	10	12	2	4	0	0	100	**72**
	%	**39.0**	33.0	10.0	12.0	2.0	4.0	0.0	0.0	100.0	**72.0**
～500	No.	**32**	31	14	16	4	3	0	0	100	**63**
	%	**32.0**	31.0	14.0	16.0	4.0	3.0	0.0	0.0	100.0	**63.0**
～600	No.	**27**	36	11	15	4	3	2	0	98	**63**
	%	**27.6**	36.7	11.2	15.3	4.1	3.1	2.0	0.0	100.0	**64.3**
～700	No.	**21**	31	12	22	8	3	3	0	100	**52**
	%	**21.0**	31.0	12.0	22.0	8.0	3.0	3.0	0.0	100.0	**52.0**
～800	No.	**14**	37	20	20	6	2	1	0	100	**51**
	%	**14.0**	37.0	20.0	20.0	6.0	2.0	1.0	0.0	100.0	**51.0**
～900	No.	**4**	28	33	18	8	5	2	1	99	**32**
	%	**4.0**	28.3	33.3	18.2	8.1	5.1	2.0	1.0	100.0	**32.3**
～1000	No.	**14**	19	27	17	15	5	2	0	99	**33**
	%	**14.1**	19.2	27.3	17.2	15.2	5.1	2.0	0.0	100.0	**33.3**
～1100	No.	**4**	17	21	23	17	8	3	3	96	**21**
	%	**4.2**	17.7	21.9	24.0	17.7	8.3	3.1	3.1	100.0	**21.9**
～1200	No.	**1**	18	23	16	19	12	4	1	94	**19**
	%	**1.1**	19.1	24.5	17.0	20.2	12.8	4.3	1.1	100.0	**20.2**
～1300	No.	**4**	10	27	10	24	13	7	1	96	**14**
	%	**4.2**	10.4	28.1	10.4	25.0	13.5	7.3	1.0	100.0	**14.6**
～1400	No.	**1**	9	21	12	18	17	12	3	93	**10**
	%	**1.1**	9.7	22.6	12.9	19.4	18.3	12.9	3.2	100.0	**10.8**
～1500	No.	**0**	5	16	5	12	18	24	8	88	**5**
	%	**0.0**	5.7	18.2	5.7	13.6	20.5	27.3	9.1	100.0	**5.7**
～1572	No.	**5**	8	6	4	12	10	14	5	64	**13**
	%	**7.8**	12.5	9.4	6.3	18.8	15.6	21.9	7.8	100.0	**20.3**

L = Level

As is seen in Table 24, 78.0% of collocations consisted of L1 nodes and collocates in the first 100 high-frequency collocations, after which the proportion of L1 nodes and collocates was steadily reduced: to 56.0 % in the second 100 high-frequency collocations, to 42.0% in the third, to 39.0 % in the

fourth and so on. For L1 and L2 nodes and collocates, which are subject to be acquired by the Japanese twelfth graders, the first 100 high-frequency collocations made up 98.0 % and then the proportion of L1 and L2 nodes and collocates slightly decreased. In other words, the higher the frequency of collocations was, the more basic words might be comprised in the collocations, which leads to the observation that high-frequency collocations in the BNC consist of basic level verbs and nouns. These collocations are to be learned before entering universities.

6.2.2. Analysis of the TIME corpus

TXTANA, another concordance software, was used to calculate the frequency of 1572 target collocations in the TIME corpus (see Appendix B). Table 25 shows that 581 out of 1572 target collocations occurred in it. About a third of targeted collocations appeared and especially the number of type of collocates was limited.

Table 25. Number of collocations appearing in the TIME corpus

	No.
Noun (type)	466
Verb (type)	180
TOTAL COLLOCATIONS	581(/1572)

A few collocates were used quite often among the collocations appearing in the TIME corpus (see Table 26). It was found that *make* was the most frequently used collocate which occurs as collocation and *take* was the second most frequently used one, which was much more often used than other collocates.

Table 26. High-frequency collocates in collocations in the TIME corpus (five times or more)

Frequency	Collocates
75	make
60	take
24	give
19	get
12	do
11	win
10	pay
9	hold, keep, play
8	have
7	cause, use
6	provide, set
5	commit, conduct, express, find, follow, lose, open, raise, send, show, suffer, tell, write

Table 27 shows collocations which were used 10 times or more in the TIME corpus. They indicate that the number of high-frequency collocations is limited, in fact, only 31 collocations were used more than 10 times in the TIME corpus.

Table 27. High-frequency collocations in the TIME corpus (10 times or more)

Frequency of collocations	Collocations
45	do thing
39	play role
24	do job
23	do work
21	find way
19	have sex, tell story, have trouble
18	ask question
17	take place
16	make decision, make sense
15	pay attention, have effect
14	lose job, make mistake, write song, take time, fight war
13	play game, raise money
12	take care, make choice, open door
11	use force, answer question, take step
10	send message, make money, make movie, take risk

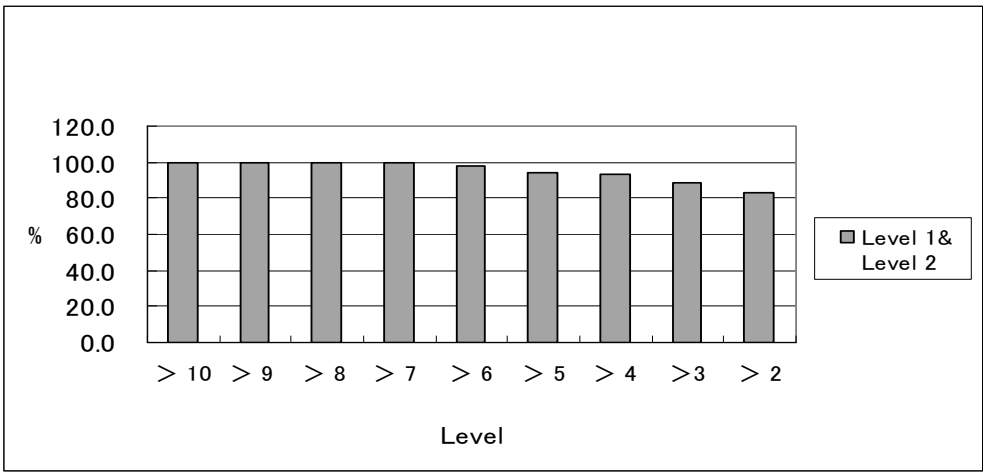

Figure 5. Proportion of Level 1 and Level 2 verbs and nouns

Table 28. Level of the nodes and collocates per high-frequency collocations in the TIME corpus

		L1	**L2**	L3	L4	L5	L6	L7	L8	**L1+2**
10 times or more	No.	**30**	**1**	0	0	0	0	0	0	**31.0**
	%	**96.8**	**3.2**	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
9 times or more	No.	**34**	**1**	0	0	0	0	0	0	**35.0**
	%	**97.1**	**2.9**	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
8 times or more	No.	**41**	**1**	0	0	0	0	0	0	**42.0**
	%	**97.6**	**2.4**	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
7 or more time	No.	**43**	**2**	0	0	0	0	0	0	**45.0**
	%	**95.6**	**4.4**	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
6 times or more	No.	**49**	**4**	0	0	1	0	0	0	**53.0**
	%	**90.7**	**7.4**	0.0	0.0	1.9	0.0	0.0	0.0	**98.1**
5 times or more	No.	**61**	**8**	1	1	1	0	1	0	**69.0**
	%	**83.6**	**11.0**	1.4	1.4	1.4	0.0	1.4	0.0	**94.5**
4 times or more	No.	**81**	**17**	1	2	1	2	1	0	**98.0**
	%	**77.1**	**16.2**	1.0	1.9	1.0	1.9	1.0	0.0	**93.3**
3 times or more	No.	**113**	**33**	4	9	1	3	1	0	**146.0**
	%	**68.9**	**20.1**	2.4	5.5	0.6	1.8	0.6	0.0	**89.0**
2 times or more	No.	**148**	**77**	13	21	2	7	3	0	**225.0**
	%	**54.6**	**28.4**	4.8	7.7	0.7	2.6	1.1	0.0	**83.0**

L = Level

A look at the frequency of collocations appearing in the TIME corpus and the level of the make-up of nouns and verbs revealed the importance of L1

and L2 words in collocations occurring in the TIME corpus, (see Table 28 and Figure 5). Table 28 shows that 95.6% of collocations appearing more than seven times consisted of L1 verbs and nouns, while those which consist of both L1 and L2 verbs and nouns reached 100%. Thereafter, the percentage of the L1 ratio of collocations became lower, however, seen in the ratio of collocations which consist of both L1 and L2, more than 80% of the collocations were made up of L1 and L2 verbs and nouns. The data reveal that high-frequency collocations in the TIME corpus consist of basic and simple-leveled words.

6.2.3. Features of collocations in the BNC and the TIME corpus

A comparison of high-frequency collocations in the BNC and the TIME Corpus brought two findings. The first is that high-frequency collocations were common in both corpora. Table 29 shows collocations which are frequently used in the TIME corpus and which are ranked within 100 in the BNC. Among 31 collocations which occurred 10 times or more in the TIME corpus, 25 collocations belonged to the 100 most frequent collocations in the BNC. Thus, common high-frequency collocations in the BNC and the TIME corpus were ranked within 100 in this analysis.

As is seen in Table 30, among six collocations which occurred 10 times or more in the TIME corpus, *have sex* is not regarded as a collocational combination in the BNC, because the z-score is 2.5, which is under the *three* needed as a collocational combination. In the other six collocations, *send message* is ranked 175th, *fight war* 275th, *write song* 352nd, *use force* 352nd, and *make movie* 590th in the BNC.

Table 29. Rank of high-frequency collocations in the BNC and the TIME corpus

Nodes	Collocates	Level(N+C)	**R. in BNC**	F. in BNC	Z-score	**R. in TIME**	F. in TIME
place	take	L1 + L1	**1**	12027	413.3	**10**	17
thing	do	L1 + L1	**2**	9961	116.7	**1**	45
effect	have	L1 + L1	**3**	7222	61.1	**13**	15
work	do	L1 + L1	**4**	5164	44.4	**4**	23
time	take	L1 + L1	**5**	4669	41.0	**15**	14
decision	make	L1 + L1	**6**	4451	198.2	**11**	16
job	do	L1 + L1	**7**	4330	78.6	**3**	24
question	ask	L1 + L1	**8**	4248	302.9	**9**	18
door	open	L1 + L1	**11**	3560	492.6	**22**	12
role	play	L1 + L1	**12**	3355	412.9	**2**	39
sense	make	L1 + L1	**17**	2818	124.3	**11**	16
way	find	L1 + L1	**19**	2742	64.1	**5**	21
step	take	L1 + L1	**21**	2643	177.7	**25**	11
care	take	L1 + L1	**23**	2609	140.0	**22**	12
question	answer	L1 + L1	**24**	2598	463.6	**25**	11
story	tell	L1 + L1	**28**	2054	188.1	**6**	19
mistake	make	L1 + L1	**31**	1968	199.6	**15**	14
game	play	L1 + L1	**32**	1956	237.9	**20**	13
trouble	have	L1 + L1	**34**	1891	27.6	**6**	19
attention	pay	L1 + L1	**43**	1707	258.5	**13**	15
money	make	L1 + L1	**51**	1533	35.9	**28**	10
money	raise	L1 + L1	**69**	1093	136.9	**20**	13
choice	make	L1 + L1	**71**	1085	55.9	**22**	12
risk	take	L2 + L1	**95**	845	49.3	**28**	10
job	lose	L1 + L1	**97**	839	92.1	**15**	14

R = rank, F = frequency

Table 30. Rank of six high-frequency collocations in the TIME corpus except collocations shown in Table 29

Nodes	Collocates	Level(N+C)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME
sex	have	L2 + L1	-	-	2.5	6	19
message	send	L1 + L1	175	548	128.1	28	10
war	fight	L1 + L1	275	363	67.9	15	14
song	write	L1 + L1	352	288	57.4	15	14
force	use	L1 + L1	352	288	27.5	25	11
movie	make	L1 + L1	590	154	15.2	28	10

R = rank, F = frequency

The other finding is that high-frequency collocations comprised basic words, as shown in the former sections, 6.2.1. and 6.2.2. The first 100 high-frequency collocations in the BNC consisted of 78.0% with L1 node and

collocate combinations in Table 24 and 90.7% of collocations appearing more than six times in the TIME corpus consisted of L1 verbs and nouns in Table 28. Thus, high-frequency collocations in the BNC and the TIME corpus comprised basic words.

6.2.4. Are high-frequency collocations topic-oriented?

In order to examine the contexts used in high-frequency collocations in the TIME corpus, the topics in which collocations appeared and their frequency were grouped into four types: Social Sciences, Science & Technology, Art & Entertainment and Others (essays & opinions) as in Table 31. Collocations which occurred 15 times or more, occurred in all topic types. Then as their frequency of occurrence became lower, a few collocations appeared in only one or two topic types. However, among the collocations occurring 10 times or more there were none which were used in only one topic type. High-frequency collocations tend to be used regardless of topics.

As for the collocations occurring 10 times or more, the following observations were made. First, constituents of collocations sharing the same semantic domain were treated in a different way. For example, in the business domain, *do job, lose job* and *do work* occurred in all four topic types, while *make money* did not appear in Art & Entertainment and *raise money* did not appear in Science & Technology and Art & Entertainment. In the war domain, *fight war* was used in all four topic types, while *use force* was not seen in Science & Technology and Art & Entertainment, and *take risk* was not found in Science & Technology. Second, collocations which were used in daily life did not appear in all the topic types. *Take care, open door* and *answer question* occurred in two or three topic types. Especially, *open door*

was used in two topic types: Science & Technology and Social Sciences, which were not related to a daily life. Last, *make movie* and *write song* seemed to be topic-oriented collocations. However, *make movie* was used only in Others and Art & Entertainment, while *write song* occurred even in Science & Technology, Social Sciences in addition to Art & Entertainment.

Table 31. Number of high-frequency collocations in the categorized four topics

Frequency of collocations	Covered topics	Collocations	No. of S&T	No. of SS	No. of O	No. of A&E
45	4	do thing	9	21	8	7
39	4	play role	17	12	6	4
24	4	do job	3	15	2	4
23	4	do work	3	15	3	2
21	4	find way	2	17	1	1
19	4	have sex	10	2	4	3
19	4	tell story	2	7	5	5
19	4	have trouble	4	10	3	2
18	4	ask question	1	12	4	1
17	4	take place	3	9	4	1
16	4	make decision	4	7	4	1
16	4	make sense	5	4	6	1
15	4	pay attention	1	9	3	2
15	4	have effect	7	2	2	4
14	4	lose job	1	9	3	1
14	4	make mistake	1	11	1	1
14	3	write song	1	2	**0**	11
14	4	take time	2	7	2	3
14	4	fight war	1	11	1	1
13	4	play game	1	6	3	3
13	2	raise money	**0**	11	2	**0**
12	3	take care	6	5	**0**	1
12	4	make choice	2	6	2	2
12	2	open door	1	11	**0**	**0**
11	2	use force	**0**	9	2	**0**
11	3	answer question	**0**	6	2	3
11	4	take step	3	4	3	1
10	4	send message	1	7	1	1
10	3	make money	2	6	2	**0**
10	2	make movie	**0**	**0**	3	7
10	3	take risk	**0**	5	3	2

S&T = Science & Technology, SS = Social Sciences, O = Others (essays & opinions), A&E = Art & Entertainment

6.2.5. Do collocations occurring in English textbooks for upper secondary school in Japan deviate from those of native-speaker English?

Compared with high-frequency collocations in the BNC and in the TIME corpus, collocations in English I textbooks for 10th graders in Japan were dealt with in different ways (Appendix C). The main features are described as follows.

1. ***The number of collocations was very small in each textbook, although each constituent of the collocations appeared respectively.***

In order to answer the fourth research question, firstly the frequency of the use of target collocations was checked by means of TXTANA. It was found that 64.2% of the collocations occurring in the four textbooks consisted of only L1 and 85.7% of them were of L1 and L2 verbs and nouns in *JACET 8000* (see Table 32). This is within the number of words which MEXT recommends in the government guidelines for foreign language teaching: 1300 words should be maximum in English I textbooks. This also meets the recommendation by Tono (2003, p. 29) and Murata (2003, p. 2) that 2000 high-frequency words can cover 81% of general texts, and so Japanese learners of English should definitely acquire them and collocations are better kept in mind.

Table 32. Frequency of appearance of verb-noun collocations in each level of the English I textbook corpus

	N	%
L1	63	64.286
L2	21	21.429
L3	8	8.1633
L4	1	1.0204
L5	3	3.0612
L6	2	2.0408
L7	0	0
L8	0	0

(L1 + L2 = 85.714) L = Level

However, a look at the mean number of collocations found in each book shows that very few verb-noun collocations occurred (see Table 33). The standard deviation was also calculated for each book (see Table 33), and it was also found that frequency of the appearance of target collocations was quite low. Thus, the number of collocations is quite small in each textbook.

Table 33. Means and standard deviations per text

	Types	M	Std. Dev.
Sunshine	20	0.244897959	0.538444198
One World	25	0.295918367	0.559992336
Unicorn	29	0.387755102	0.698048134
Milestone	32	0.571428571	0.837275897

Table 34. Frequency of appearance of Level 1 verbs and nouns and Level 1 verb-noun collocations

	Appearance of Level 1 verbs and nouns	Appearance of Level 1 verb-noun combinations	%
Sunshine	138	10	7.246377
One World	136	19	13.76812
Unicorn	171	23	16.66667
Milestone	152	28	20.28986
S+O+U+M in common	44	0	0

337 Level 1 noun and Level 1 verb collocations are in 1572 targeted collocations.
S = Sunshine, O = One World, U = Unicorn, M = Milestone

The data are also supported by Table 34 showing the frequency of appearance of L1 verbs and nouns and L1 verb-noun collocations. Thirty hundred thirty seven out of 1572 target collocations consisted of L1 verb and noun combinations. In each textbook 136 to 171 L1 verbs and L1 nouns in 337 collocations occurred, but the appearance of the combination of the L1 verbs and nouns was 7.2 % in *Sunshine*, the lowest percentage, and 20.3% in *Milestone,* the highest percentage. In other words, although L1 verbs and L1 nouns composing 337 target collocations were used in each textbook, they did

not occur as collocations. Thus, L1 and L2 verbs and nouns which meet the recommendation of MEXT's guidelines were treated in each textbook, but not presented as collocations of verbs and nouns.

2. ***Each textbook had no consensus on what kind of collocation should be taught.***

Table 35 shows what kind of collocations occurred among the four textbooks. It was found that there were no collocations which appeared in all the four textbooks. Four collocations, *make mistake*, *find way*, *take step* and *do thing* are common among three textbooks and 10 collocations, *take action*, *push button*, *make call*, *take care*, *make friend*, *send message*, *make money*, *answer question*, *ask question* and *give information* were common in two textbooks. Another 84 collocations appeared in each textbook. Thus, the use of collocations was different in the four textbooks respectively, indicating that textbooks had no consensus on what kind of collocation should be taught.

Table 35. Appearance of collocations in textbooks

	No.	Examples
collocations appearing in all four textbooks	0	
collocations appearing in three textbooks	4	make mistake/ find way/ take step/ do thing
collocations appearing in two textbooks	10	take action/ push button/ make call/ take care/ make friend/ send message/ make money/ answer question/ ask question/ give information
collocations appearing in one textbook	84	

3. ***Even collocations appearing in the textbooks were not repeated many times: pedagogical consideration was lacking.***

Table 36 shows the frequency of each collocation in each textbook. It was found that the same collocations were not repeated in each textbook. In fact, 74% of all the collocations that appeared were repeated only once. Three collocations, *take photo*, *make speech* and *run marathon* appeared four times, four collocations, *blow whistle*, *ride bicycle*, *play game* and *do thing* (in *Milestone*) appeared three times and 14 collocations, *take step*, *do thing* (in *Unicorn*), *give information*, *ask question*, *give answer*, *catch bus*, *have effect*, *open eye*, *eat food*, *learn language*, *take pride*, *make reservation*, *give speech* and *have trouble* appeared twice.

Table 36. Frequency of each collocation in each textbook

	No.	Examples
four-time appearance of each collocation in each textbook	3	take photo, make speech, run marathon
three-time appearance of each collocation in each textbook	4	blow whistle, ride bicycle, play game, do thing (M)
two-time appearance of each collocation in each textbook	14	take step, do thing (U), give information, ask question, give answer, catch bus, have effect, open eye, eat food, learn language, take pride, make reservation, give speech, have trouble

(one-time appearance of a collocation in each textbook = 64)

Findings of the experiments by Crothers & Suppes (1967), Kachroo (1962), Rott (1999), Salling (1959), Saragi, Nation and Meister (1978) and Zahar, Cobb and Spada (2001) show that words repeated more than five times are acquired by almost all the informants but more than half of words repeated only once or twice are not learned (see section 6.3). It is obvious that these textbooks are not edited to teach collocation effectively.

4. *High-frequency collocations were common in the BNC, the TIME corpus and English I textbook corpus.*

Table 37. Rank of high-frequency collocations in the BNC, the TIME corpus and the English I textbook corpus within rank 100

Nodes	Collocates	Level (N+C)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in English	F. in English
place	take	L1 + L1	1	12027	413.3	10	17	31	1
thing	do	L1 + L1	2	9961	116.7	1	45	1	6
effect	have	L1 + L1	3	7222	61.1	13	15	13	2
work	do	L1 + L1	4	5164	44.4	4	23	31	1
time	take	L1 + L1	5	4669	41.0	15	14	31	1
decision	make	L1 + L1	6	4451	198.2	11	16	31	1
job	do	L1 + L1	7	4330	78.6	3	24	0	0
question	ask	L1 + L1	8	4248	302.9	9	18	6	3
part[1]	**take**	**L1 + L1**	**9**	**3858**	**99.7**	**55**	**5**	**31**	**1**
door	open	L1 + L1	11	3560	492.6	22	12	31	1
role	play	L1 + L1	12	3355	412.9	2	39	0	0
thing	**say**	**L1 + L1**	**15**	**3004**	**24.1**	**32**	**8**	**31**	**1**
action	**take**	**L1 + L1**	**16**	**2912**	**130.6**	**74**	**4**	**13**	**2**
sense	make	L1 + L1	17	2818	124.3	11	16	13	1
way	find	L1 + L1	19	2742	64.1	5	21	6	3
step	take	L1 + L1	21	2643	177.7	25	11	2	4
care	take	L1 + L1	23	2609	140.0	22	12	13	2
question	answer	L1 + L1	24	2598	463.6	25	11	13	2
point	**make**	**L1 + L1**	**25**	**2562**	**60.9**	**55**	**5**	**31**	**1**
story	tell	L1 + L1	28	2054	188.1	6	19	0	0
problem	**solve**	**L1 + L2**	**29**	**2016**	**483.1**	**32**	**9**	**31**	**1**
job	**get**	**L1 + L1**	**30**	**2008**	**61.8**	**32**	**9**	**31**	**1**
mistake	make	L1 + L1	31	1968	199.6	15	14	6	3
game	play	L1 + L1	32	1956	237.9	20	13	6	3
effort	**make**	**L1 + L1**	**33**	**1909**	**142.9**	**55**	**5**	**31**	**1**
trouble	have	L1 + L1	34	1891	27.6	6	19	13	2
hand	**hold**	**L1 + L1**	**36**	**1854**	**120.0**	**74**	**4**	**31**	**1**
method	**use**	**L1 + L1**	**41**	**1719**	**126.2**	**274**	**1**	**31**	**1**
attention	pay	L1 + L1	43	1707	258.5	13	15	0	0
eye	**close**	**L1 + L1**	**44**	**1621**	**258.2**	**107**	**3**	**31**	**1**
money	make	L1 + L1	51	1533	35.9	28	10	13	2
information	**give**	**L1 + L1**	**53**	**1495**	**55.7**	**107**	**3**	**6**	**3**
opportunity	**give**	**L1 + L1**	**56**	**1325**	**91.3**	**74**	**4**	**31**	**1**
book	**write**	**L1 + L1**	**57**	**1264**	**105.5**	**32**	**8**	**31**	**1**
look	**take**	**L1 + L1**	**61**	**1224**	**82.0**	**55**	**5**	**31**	**1**
money	raise	L1 + L1	69	1093	136.9	20	13	31	1
idea	**get**	**L1 + L1**	**73**	**1052**	**21.0**	**274**	**1**	**31**	**1**
choice	make	L1 + L1	71	1085	55.9	22	12	31	1
eye	**open**	**L1 + L1**	**85**	**961**	**109.5**	**107**	**3**	**13**	**2**
noise	**make**	**L2 + L1**	**90**	**931**	**88.1**	**274**	**1**	**31**	**1**
example	**give**	**L1 + L1**	**92**	**899**	**21.9**	**-**	**-**	**31**	**1**
risk	take	L2 + L1	95	845	49.3	28	10	0	0
job	lose	L1 + L1	97	839	92.1	15	14	0	0
friend	**make**	**L1 + L1**	**98**	**827**	**12.8**	**74**	**4**	**13**	**2**
answer	**give**	**L1 + L1**	**99**	**799**	**59.8**	**274**	**1**	**13**	**2**

[1]Bold-faced words and numbers show the collocations occurring in the English I textbook corpus, although they do not appear more than 10 times in the TIME corpus.
N + C = nouns and collocates, R = rank, F = frequency

Table 37 indicates collocations which were ranked within the most frequent 100 in the BNC, and which occurred 10 times or more in the TIME corpus and in the English I textbook corpus (Appendix D).

As mentioned in a previous section, 6.2.3., 25 out of 31 collocations occur as high-frequency collocations within the rank 100 in the both BNC and the TIME corpus, proving high-frequency collocations in both corpora overlap. Table 37 also shows that collocations occurring in the English I textbook corpus were ranked within 100th in the BNC, although some did not overlap with those in the TIME corpus. In fact, 39 out of 98 (40.0%) collocations occurring in the English I textbook corpus were ranked within 100th. The targeted English I textbooks present high-frequency collocations which are in native speaker English corpora, although the number of collocations used was insufficient and they were not repeated.

6.2.6. Summary

The above findings were summarized in relation to the postulated research questions.

1. ***What are high-frequency collocations in large corpora collected from native speakers of English?***

Based on the analyses of high-frequency collocations in the BNC and the TIME corpus, many high-frequency collocations overlapped within the rank 100 in both corpora, which can be interpreted as high-frequency collocations by native speakers of English. Among 31 collocations which occur more than 10 times in the TIME corpus, 25 were also ranked within 100 in the BNC. The extremely frequent collocations were in the order of frequency: *take place*, *do thing*, *have effect*, *do work*, *take time*, *make decision*, *do job*, *ask*

question, *open door*, *play role*, *make sense*, *find way*, *take step*, *take care*, *answer question*, *tell story*, *make mistake*, *play game*, *have trouble*, *pay attention*, *make money*, *raise money*, *make choice*, *take risk* and *lose job*.

2. *What are features of those high-frequency collocations by native speakers of English?*

2a. *Which levels of words are included in the high-frequency verb-noun collocations, in the word list of basic words for Japanese learners of English?*

In addition to common collocations in the BNC and the TIME corpus referred to in research question 1, it was found that high-frequency collocations consisted of basic verbs and nouns as a result of the analyses of the BNC and the TIME corpus. This was seen among the 25 extremely high-frequency collocations. *Take risk* was the only one collocation which consisted of an L2 node and an L1 collocate.

2b. *Are high-frequency collocations of native-speaker English related to topics?*

The analysis of high-frequency collocations and the topic types where they occurred in the TIME corpus indicated that more than 15 time collocations which appeared occurred in all four topics set for this research. Since the analysis is a small scale, however, more research is needed to confirm this research question.

3. *How are collocations presented in English textbooks for upper secondary school students in Japan deviated from those of*

native-speaker English?

In fact, the treatment of collocations in the English I textbook corpus was problematic in that few collocations were used in all the English I textbooks and they were not used repeatedly to be fixed firmly in learners' mind. There were 39 collocations which were ranked within the 100 in the BNC.

6.3. Discussion

There are three interesting points arising from the corpus data of verb-noun collocations in the BNC, the TIME corpus and English I textbook corpus.

First, high-frequency collocations were high ranked in both the BNC and the TIME corpus. This was contrary to the present writer's expectation because the sources of these two corpora were different: the BNC is extracted samples of British English while the TIME corpus is extracted samples of mainly North American English. The total tokens and types were also different: about 100 million tokens were in the BNC and about 453 thousand tokens were in the TIME corpus. Furthermore, surprisingly, some collocations occurring in the English I textbook corpus overlapped with high-frequency collocations ranked within 100 in the BNC and those which occurred more than 10 times in the TIME corpus, in spite of the very limited total tokens in English I textbooks: about 6000 to 8000 tokens. These were a desirable result in order to identify basic collocations for Japanese learners of English at an early stage.

Second, high-frequency collocations consisted of basic-level words, according to the results of analyzed data extracted from the BNC and the TIME corpus. In fact, collocations composing L1 and L2 verbs and nouns

made up around 85% of all the occurring collocations in the TIME corpus. In the BNC, the coverage of L1 verb-noun collocations reached 78%, and the coverage of L1 and L2 verb-noun collocations reached 98% in the first 100 high-frequency collocations. These findings were also desirable for Japanese upper secondary school students because they are expected to develop their four skills comprehensively using textbooks with a very limited number of vocabulary. Thirteen hundred words are targeted for 10th graders, but as they are calculated in the word-form system in which headwords, inflectional forms, reduced forms and derivative forms are respectively counted, these 1300 words will be in fact smaller in number, if they are calculated as one word.

Collocation is a good way to develop a better command of English with a limited number of words. This is supported by many researchers who regard collocation as important in EFL learning. Bahns (1993) and Howarth (1998a, b) emphasize the importance of collocation teaching. So do Ellis (2001), Lexical Approach advocates (Lewis 1993, 2000; Hill 2000), McCarthy (1984), Yorio (1980) and many other researchers (see section 2.4.). Gitsaki and Taylor (1999) claim that teachers should supply new lexical items together with their most frequent collocations in an EFL class while they are being taught. Hattori and Matsuhata (1980), Tono (2003) and Murata (2003) mention that new words would be firmly fixed in students' minds when they are presented with words which have already been learned.

English I textbooks do not present high-frequency collocations repeatedly frequently enough in the same context or in the different context. Previous research proved that words should be repeated six times to be effectively learned on average. Kachroo (1962) examined how many times certain words

were repeatedly presented in a textbook and how they were fixed in learners' memory. His findings showed that words repeated more than seven times were acquired by almost all the informants, and more than half of words repeated only once or twice were not memorized by them. Salling (1959) and Crothers and Suppes (1967) conducted similar experiment. Salling suggests that at least a five-time repetition of words is necessary to be memorized. Crothers and Suppers (1967) claim that words should be repeated six or seven times. According to Rod (1999), six-time repetition of words in a reading textbook results in better acquisition of words than two-time and four-time repetition. Zahar et al. (2001) conducted research on the relationship between the repetition of targeted word and their acquisition by learners of different levels and found that those in lower levels should have more opportunities to be exposed to the target words seven times on average to acquire them. Saragi et al. (1978) came to the conclusion that when students try to keep certain words in their minds through reading a text, they should read it more than 16 times. Shaughnessy, Zimmerman and Underwood (1970) claimed that certain words would be more firmly fixed by repeating them at certain intervals than by doing so intensively. Thus, these pieces of research tell us that collocations should be repeatedly presented much more often in textbooks.

Teachers are required to find ways to expose high frequency collocations to students because collocations cannot be presented repeatedly in the limited number of textbook pages. For example, by reading a text passage including target collocations several times, listening to a tape several times, or presenting examples of sentences including target collocations several times. Explicit learning is an especially effective way to make learners pay

attention to collocations. Schmitt (2000) maintains that both explicit and incidental learning are necessary, especially certain important words, for example, the most frequent words in a language and technical vocabulary, make excellent targets for explicit attention. Nation and Kyongho (1995) argue that we should consider vocabulary teaching in terms of cost/benefits, with the value of learning such words well worth the time required to teach them explicitly; on the other hand, infrequent words in general English are probably best left to incidental learning. Zahar et al. (2001) conducted research on EFL students at lower secondary schools. They acquired 2.16 words on average when they read a 2098-word text including 30 unknown words. They were expected to learn about 70 words in a year after they read such kinds of text every day. These three pieces of research invite us to teach explicitly collocations which are used frequently.

Third, among collocations extracted from the TIME corpus, some which are related to specific topic types and tend to be ranked lower in the BNC, although they occurred 10 times or more in the TIME corpus. For example, among six collocations which occur 10 times or more in the TIME corpus, but which are not ranked within the 100 in the BNC *fight war* (275th) and *use force* (352nd) are on the Iraqi issues and *write song* (352nd) and *make movie* (590th) are on entertainment. TIME American version tends to reflect current domestic issues such as presidential election and the US related issues such as Iraqi war. They may have ranked lower in the more general corpus.

The collocations extracted from the English I textbook corpus also indicated the same tendency. Among more than three-time collocations occurring in the English I textbook corpus, for example, *run marathon*

occurred four times, highest frequency collocation in the corpus but the rank of this collocation in the BNC is the 838th however. Thus, topic-oriented collocations tend to be ranked low in the general corpus.

Moreover, words of every day use which are frequently used in lower and upper secondary English textbooks also tend to be lower in the general corpus. For example, *take photo* (566th), *blow whistle* (689th), and *ride bicycle* (885th) are frequently used in our daily life, but their ranks are low in the BNC.

Finally, the purpose of English learning of Japanese students must be considered. They need to learn English for General Purposes (EGP) to develop basic English skills, not English for Specific Purposes (ESP) such as technical or business terms. Therefore, basic collocations become requisite for them (see section 2.4). Leech, Rayson and Wilson (2001) support this idea and emphasize the use of frequency data for educational purposes as follows:

> For the teaching of languages, whether as a mother tongue or as a foreign or second language, information about the frequencies of words is important for vocabulary grading and selection. Here frequency has applications to language learning in such areas as: syllabus design, materials writing, grading and simplification of readers, language testing and perhaps even at the 'chalkface' of classroom teaching (Leech et al. 2001: ix).

The editors of *JACET 8000* also mention that they struggled with a most challenging task of harmonizing scientific accuracy and educational effectiveness in order to make up a word list for Japanese learners of English. They point out three problems on selection of high-frequency words: (a) They have chosen words related to current affairs such as political issues and economic issues and many vulgar words and slang words; (b) They have

excluded daily words popular in lower and upper secondary English textbooks; and (c) They do not cover words for the beginning level. Therefore, ranks of words based on corpus data were modified, referring to those based on English textbooks for upper secondary students. Based on the viewpoints of Leech et al. and the editors of *JACET 8000*, collocations should be identified scientifically and educationally for Japanese learners of English in this research.

6.4. Basic collocations determined by analyses of corpora

Leech et al. (2001), Nation (2001), Schmitt (2000) and Schmitt & McCarthy (1997) point out that frequency is the main criterion in analyses of collocations in corpus study. However, the educational point of view as mentioned above needs to be incorporated to consider basic collocations which are requisite for Japanese learners of English at the early stage, especially for secondary school students. Important criteria to select basic collocations by means of the analyses of three corpora are (a) frequency, (b) z-score, (c) level of nodes and collocates, and (d) an educational point of view.

As for frequency, those selected are extremely-high frequency collocations which occur 10 times or more in the TIME corpus and which are also ranked within the top 100 in the BNC and the TIME corpus, and high-frequency collocations which occur more than three times in the TIME corpus and are ranked within the top 100 in the BNC and the TIME corpus.

Z-score is one of the most reliable statistic measures of collocational strength. According to Berry-Rogghe (1973) and Bahnbrook (1996), collocations with numbers over *three* are statistically significant (see section 5.5.). The present study follows this measurement.

For the third criteria, the level of nodes and collocates, the number of words expected to be learned by secondary school students should be taken into consideration. According to the government guidelines for foreign language teaching issued by MEXT (2003), 1800 words should be chosen for instruction up to the twelfth grade and this number covers L1 and L2 words, meaning the first 2000 basic words. This research targets L1 and L2, but as L1 plays a vital role in basic collocations, L1 words have priority over L2 words.

A pedagogical viewpoint should be taken to think what collocations are basic for Japanese learners of English at the early stage. As *JACET 8000* pointed out that general corpora tend to lack daily words which are popular in lower and upper secondary English textbooks, we should include more words used in a daily life for the educational effectiveness. Therefore, collocations which consist of daily words should be chosen although they are ranked lower in the BNC and the TIME corpus. In addition to the collocations occurring more than two times within the top 100 in the BNC, collocations of common nodes and verbs occurring in all the target four English I textbooks are listed as basic collocations in this research.

As mentioned above, these four criteria are summarized as follows:

Table 38. Four criteria to select basic collocation based on the corpus analyses

(a) frequency	more than 3 time-collocations in the TIME corpus or more than 2-time collocations in the English I textbook corpus within the 100 in the BNC
(b) z-score	＞3.0
(c) level of nodes and collocates	L1 or L2
(d) educational point of view	collocations of nodes and collocates of daily use for all the English I textbooks

Based on these four criteria, the following 61 collocations were selected as basic collocations as a result of corpus-based analyses.

Table 39. Basic collocations

1	take place	2	do thing	3	have effect
4	do work	5	take time	6	make decision
7	do job	8	ask question	9	take part
10	shake head	11	open door	12	play role
13	make way	14	say thing	15	take action
16	make sense	17	find way	18	take step
19	take care	20	answer question	21	make point
22	make difference	23	take advantage	24	tell story
25	solve problem	26	get job	27	make mistake
28	play game	29	make effort	30	have trouble
31	hold hand	32	pay attention	33	close eye
34	make progress	35	make money	36	take view
37	give information	38	close door	39	give opportunity
40	write book	41	raise question	42	pay tax
43	take look	44	hold meeting	45	raise money
46	make choice	47	tell truth	48	give reason
49	shake hand	50	make claim	51	show sign
52	open eye	53	give example	54	send letter
55	take risk	56	lose job	57	make friend
58	give answer	59	eat food	60	give lesson
61	take lesson				

Chapter 7. Methodology:
Phase II. Empirical research on the development of learners' collocational knowledge

7.1. Introduction

This second research area examines the mechanism of collocational knowledge of Japanese learners of English, as mentioned in section 4.4.2. As summarized in Chapter 3, many researchers have attempted to clarify how EFL learners acquire collocations and this has been considered key factors to develop their English communication ability for the last two decades. In contrast, research on collocations in Japan has been very limited so that we think it to be significant to conduct empirical research on collocation acquisition by Japanese learners of English, which may lead us to effective ways to develop their collocational knowledge.

In the following sections the methodology is shown in detail. The first section mentions four research questions in order to pursue the purpose. The second section explains selected verb-noun collocations and the sub-categories divided by the features of the collocations. The third section describes subjects who took part in the present research and three kinds of testing materials used in the data collection. The last section presents experiment procedure and scoring procedure.

7.2. Research questions

In order to clarify the mechanism of collocation acquisition of Japanese learners of English, the followings are focused on, based on the previous research on collocational acquisition seen in Chapter 3: learners' English vocabulary size, learners' productive and receptive knowledge of English collocation, factors influencing the development of their collocational

knowledge and degrees of collocational knowledge necessary in communication.

The specific research questions are as follows:

1. How are vocabulary knowledge and collocational knowledge related to one another? Will the learners' collocational knowledge expand at the same rate as their vocabulary knowledge in general?
2. What development occurs in learners' receptive and productive knowledge of collocations for different types of collocations at different stages of language learning? Will learners acquire receptive knowledge of collocations first and then productive knowledge of collocations for some types of collocations and various stages of language learning?
3. What influences learners' collocational knowledge? Shortage of general vocabulary knowledge, L1 equivalence, semantic transparency of collocations, collocational restriction, core meanings, collocational structure?
4. How important is collocational knowledge in the acquisition of English communication skills for Japanese learners of English? When collocations cannot be used properly, how will learners express themselves instead of them?

7.3. Selected collocations

In this analysis, collocations used were those which were regarded as basic as a result of corpus-based research in Chapters 5 and 6. However, seven of the 61 collocations have two different meanings (*make way, play role, take part, take place*, *take time*, *take care, take step*). For example, *take place* means (a) *something happens*, and (b) *act instead of someone*. Therefore, both two meanings of seven collocations were targeted in this

research, amounting to 68 items.

Table 40. Selected collocations (ID)

(1)	take place	(2)	do thing	(3)	have effect
(4)	do work	(5)	take time	(6)	make decision
(7)	do job	(8)	ask question	(9)	take part
(10)	shake head	(11)	open door	(12)	play role
(13)	make way	(14)	say thing	(15)	take action
(16)	make sense	(17)	find way	(18)	take step
(19)	take care	(20)	answer question	(21)	make point
(22)	make difference	(23)	take advantage	(24)	tell story
(25)	solve problem	(26)	get job	(27)	make mistake
(28)	play game	(29)	make effort	(30)	have trouble
(31)	hold hand	(32)	pay attention	(33)	close eye
(34)	make progress	(35)	make money	(36)	take view
(37)	give information	(38)	close door	(39)	give opportunity
(40)	write book	(41)	raise question	(42)	pay tax
(43)	take look	(44)	hold meeting	(45)	raise money
(46)	make choice	(47)	tell truth	(48)	give reason
(49)	shake hand	(50)	make claim	(51)	show sign
(52)	open eye	(53)	give example	(54)	send letter
(55)	take risk	(56)	lose job	(57)	make friend
(58)	give answer	(59)	eat food	(60)	give lesson
(61)	take lesson	(62)	take place	(63)	take time
(64)	take part	(65)	play role	(66)	make way
(67)	take step	(68)	take care		

In order to investigate influential factors for collocation acquisition, 68 items were examined and characterized in terms of six collocational features, which have been regarded as influential factors by many researchers. The six factors are as follows:

1. collocational restriction
2. semantic opacity
3. L1 equivalence
4. delexicalized verbs
5. core meanings
6. collocational structure (prepositions and articles)

Collocational restrictions are one of the main features characterizing collocations, questioning whether constituents can be substitutable with other synonymous words. Each collocation has different degrees along the continuum: some collocations have several substituted synonyms for one or two constituents and others do not. Blum and Levenston (1978) and Gitsaki (1999) confirm that collocational restriction is one of the influential factors for collocation acquisition.

Semantic opacity is the other main feature for collocations, and asks whether the meaning of the combinations is retrievable from each constituent. For example, *eat food* is transparent because *eat* and *food* are clearly understandable, while *take a bath* is half transparent because *bath* is clearly understandable, but *take* is not. Gitsaki (1999) maintains that semantic opacity is one of the influential factors for collocation acquisition.

L1 equivalence refers to whether the given English collocations are equivalent to those of learners' mother tongue or not and it has been regarded as the serious factor exerting influence upon the collocation acquisition for EFL learners. The influence of L1 negative transfer caused by non-L1 equivalence has been supported by many researchers (Bahns & Eldaw, 1993; Biskup, 1992; Caroli, 1998; Eldaw, 1993; Elyildirm, 1997; Fayez-Hussein, 1990; Gitsaki, 1999; Granger, 1998; Kellerman, 1979; Lennon, 1996; Nesselhauf, 2003).

Delexicalized verbs are components in a large number of multi-word expressions and they have little or no meaning outside the context of particular use. Because of the wide range of patterns into which they enter, it is often more appropriate to think of these words as part of the grammar of English, rather than just as words in the lexicon. Their principle is especially important in Lexical Approach (Lewis, 2002). The main delexicalized verbs are: *do*, *get*, *give*, *have*, *keep*, *look*, *make*, *put*, *take*. Caroli

(1998) examined the learning burden of collocations including lexical words (lexical collocations) and collocations including delexical words (delexical collocations) respectively, but didn't get substantial result. She believed that this result was because learners were familiar with the delexical collocations.

Core meanings are the central and context free meanings. If the constituents of collocations have core meanings, learners are likely to comprehend and acquire them easily. On the contrary, if collocations involve constituents with peripheral meanings or delexical meanings, they are less likely to do so. Kellerman (1979) and Lennon (1996) regard core meanings as important in collocation acquisition.

The final feature, collocational structure (prepositions and articles) is seen when unique prepositions and articles are attached to some verb-noun collocations. For example, in *make friends with*, *friends* should be plural and *with* is necessary to express *patient*. This feature is not necessarily applicable to all the collocations, but Nesselhauf (2003) regards it as important in that it is necessary to teach not lexical elements but entire combinations including prepositions, articles and etc. to produce entire sentences.

Table 41. Six features and the sub categories of collocations

six features	sub category 1	sub category 2	sub category 3
collocational restriction	substitutable	not substitutable	
semantic opacity	transparent	half-transparent	opaque
L1 equivalence	equivalent	not equivalent	
delexicalized verbs	lexical	delexical	
core meanings (verbs)	core	peripheral	
(nouns)	core	peripheral	
collocational structure (prepositions and articles)	structurally simple	structurally complex	

Based on these six features, sub categories (see Table 41) were set up for grouping all the target collocations (see Appendix E).

7.4. Materials

7.4.1. Test A: Vocabulary size test

Test A is a vocabulary size test (see Appendix F) which was designed by Mochizuki (1998, VST). The purpose of the test is to assess learners' written receptive vocabulary level. The VST was created by improving Aizawa's vocabulary test (cited in Mochizuki, 1998) which was based on Nation's vocabulary levels test1[1](1990, VLT). Aizawa (cited in Mochizuki, 1998) pointed out that the VLT had four main shortcomings when Japanese learners of English took it to measure their vocabulary levels: there are too many loanwords in the test, definitions are too difficult because they are provided in English, levels of used words in the test are improper and vocabulary list consulted for selection of words in the test is inappropriate. He successfully made it appropriate for Japanese learners of English by reducing the proportion of loan words, providing definitions in Japanese instead of those in English, conducting a review of selected words and consulting the Hokkaido University English Vocabulary List (1996, Hokkaido Vocabulary List) for them. Mochizuki (1998) further improved Aizawa's vocabulary test (cited in Mochizuki, 1998) by revising the ways of counting words adopted in the Hokkaido Vocabulary List to make it more reliable for Japanese learners of English. In fact Mochizuki (1998) and Katagiri (2004) confirmed the reliability and validity of the VST. From all mentioned above, the VST is a sufficiently useful and reliable diagnostic

[1] The VLT has been generally considered the most reliable vocabulary test, which is supported by Laufer (1992) and Meara (1996).

tool[2] for Japanese learners of English.

The VST consists of seven levels, 1,000 level test, 2,000 level test, 3,000 level test, 4,000 level test, 5,000 level test, 6,000 level test, and 7,000 level test. The format of the test is word-definition matching. Each test has 15 sections which consist of two Japanese words and six English words as choices, amounting to 30 targeted words. The subjects were asked to match the correct English words to the Japanese words. Thirty words in each level test were selected from each 1000 word-frequency level. For example, in the 1,000 level test, English words equivalent to 30 Japanese words were asked to identify among choices. How vocabulary sizes were estimated in each word-frequency level is shown in Table 42:

Table 42. Way of estimating the number of words in the VST (referred to in Katagiri, 2004)

Test level	Populations	Samples (VST)	Estimated vocabulary sizes in each word-frequency level
Level 7	7,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
Level 6	6,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
Level 5	5,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
Level 4	4,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
Level 3	3,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
Level 2	2,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
Level1	1,000 word-frequency level (1,000 words)	⇒30 words	(the number of known words out of 30 sampled words)÷30×1000
	Total 1,000 to 7,000 word-frequency level (7,000 words)	210	(the number of known words out of 210 sampled words)÷210×1000

[2] The latest word list, JACET 8000 was published in 2003. This list is a new revised version of the JACET 4000 and is based on the British National Corpus and a set of various sub corpora such as TOEIC corpus and scientific magazine corpus. In corpus-based analysis (Chapters 5 and 6), JACET 8000 was used to select basic nouns for Japanese learners of English, but a vocabulary test based on it has not been developed. Therefore, the VST is the most reliable and useful test to date.

7.4.2. Test B: Productive collocation test

Test B is the productive collocation test (see Appendix G), whose purpose is to examine learners' productive knowledge of collocations, targeting 68 collocations selected in the corpus-based research in Chapters 5 and 6.

The productive collocation test is a translation task, which was conducted in a limited number of class hours. In it, 68 English sentences, with blanks for phrases including selected collocations, with a Japanese translation and key word nouns which were constituents of these collocations, were prepared and the subjects were asked to translate them into English phrases. If they did not manage to do the task with the key words, they were then allowed to create other expressions. This is to examine how learners express themselves when they do not know the target collocations.

Attached was a Japanese translation deliberately selected from five English Japanese dictionaries[3]. The Japanese translation might affect learners' translation into English, which has been considered as a main factor by many researchers such as Bahns and Eldaw (1993) and Biskup (1992). In fact those used were the most general Japanese translations for English sentences cited in many of the used English-Japanese dictionaries and they were divided into two categories for the research: ones which include collocations with a Japanese equivalent and ones without a Japanese equivalent.

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[3] Five English-Japanese dictionaries are *Eijiro* (2000), the *Lighthouse English-Japanese Dictionary* (2002), the *Super Anchor English-Japanese Dictionary* (2003), the *Lexis English-Japanese Dictionary* (2003) and the *Genius English-Japanese Dictionary* (2001).

7.4.3. Test C: Receptive collocation test

Test C is the receptive collocation test (see Appendix H) with the aim of measuring the learners' receptive knowledge of collocations. The selected collocations were identical to those used in the productive collocation test. The test format was multiple-choice and 68 sentences in the productive collocation test were also used, in which the collocates (verbs) were left out. The choices in each question were three and all of the distracters were synonymous words, which were selected from the *Concise Oxford Thesaurus* (1997), the *Oxford Advanced Learner's Dictionary* (2000), *Eijiro* (2000), an electrical dictionary, the *Lighthouse English-Japanese Dictionary* (2002), the *Super Anchor English-Japanese Dictionary* (2003), the *Lexis English-Japanese Dictionary* (2003). In order to confirm whether the distracters collocate with the nodes, the following collocation dictionaries are referred: *the BBI Dictionary of English Word Combinations, Dictionary of English Collocations* (1995), *COBUILD English Collocations on CD-ROM* (1995) and *Oxford Collocations Dictionary for students of English* (2002). The students were asked to choose one which they thought was right from the three choices.

7.5. Subjects

There were 130 Japanese students involved in this test. They were first-year to fifth-year university students, aged 18-23, who were enrolled at several different universities in Japan. They were majoring in engineering, commerce, business administration and human sciences. The first language of all the students is Japanese. Most students had no experience studying abroad.

They have received classroom instruction in EFL for a period of at least six years at lower and upper secondary schools, where it is conducted under

the government guidelines by MEXT. The purpose of English education for them in Japan is to develop their four skills comprehensively and foster a positive attitude toward communication. In order to develop their communication ability, the instruction focuses on oral communication. Textbooks are compiled under the guide of MEXT.

The data collected from the subjects, who completed the VST, productive collocation test and receptive collocation test (130 out of our 200), were analyzed. The data were divided into four groups, based on the scores of the vocabulary test designed by Mochizuki (1998). Table 43 below shows the number of subjects at each vocabulary level.

Table 43. Four groups of subjects

Categorization	No. of subjects
Group A: 2000 word level	31
Group B: 3000 word level	26
Group C: 4000 word level	41
Group D: 5000 word level	32

7.6. Data collection procedure

These three kinds of tests were administered during classroom hours. First, the subjects were asked to take the VST in a classroom hour. As it consists of seven levels, it lasted from 40 minutes to 60 minutes to administer, depending on the subjects' progress of the test. Mochizuki, Aizawa and Tono (2003) indicate that the appropriate level VST to be conducted to measure the subjects' vocabulary levels, should be selected depending on teachers' assessment of their English proficiency. Therefore, judging from the result of another test and daily interaction, appropriate

level tests were used[4].

The productive collocation test was conducted, following the VST. As this was a translation test, in which the subjects had to comprehend given Japanese sentences with key words and translate them into English, it was supposed to take much more time to complete the tasks. So, two days were given to complete them in order not to disturb regular classroom activities.

The receptive collocation test was conducted, following the productive collocation test. It lasted from 30 to 40 minutes. The period of time for the productive collocation test and the receptive collocation test was not decided in advance. The period of a regular class, the forms of tests and the progress of their taking tests were taken into account so that enough time was given to the subjects.

The students were not allowed to use any dictionaries to check the meanings of words. Moreover, they were not informed about the true purpose of these tests, but were simply told that their vocabulary proficiency would be tested. After finishing all the tests, the answer sheets were returned to students from an instructive viewpoint.

7.7. Scoring procedure

The tests results were marked. In the VST and the receptive collocation test, the items were simply scored in terms of correct or incorrect criteria, because both of the tests were multiple choice formats. Therefore, a correct answer got one point and blank or incorrect answer zero points. In the VST, the subject's vocabulary levels were calculated based on the number of

[4] More than half of the subjects took all level-tests, while some whose vocabulary size was supposed to be very limited took four or five level-tests. However, after their results were calculated, they were shown to have more vocabulary than expected. In that case one more level or two more level tests were given to them.

known words out of 30 sampled words in each level test (see Table 42) and in the receptive collocation test; the total score was 68 points.

On the other hand, the productive collocation test had a complicated scoring procedure, because it was the translation task and got a variety of answers. The subject's answers were classified into the seven categories on the grounds that target collocations had unique features respectively. Table 44 below shows the categorization of their answers:

Table 44. Categorization of correct and incorrect answers

	type of correct or incorrect answers
correct answers	correct answers including expected collocations
	acceptable answers including alternative collocations
	acceptable answers described with other expressions
incorrect answers	incorrect answers influenced by L1 negative transfer
	incorrect answers including verbalized nouns
	incorrect answers lacking appropriate syntactic structures which could distort meanings.
	incorrect answers
blank	

Whether the answers given by the subjects were acceptable or not was determined by two procedures. First by consulting the BNC and several other collocation dictionaries (e.g. *Oxford Collocations Dictionary for students of English* (2002)) and also English-Japanese and English-English dictionaries (e.g. *Lighthouse English-Japanese Dictionary* (fourth edition, 2002)). Second, remaining unclear answers as to their acceptability were re-evaluated by the respondents were asked to judge their acceptability in terms of three scales: acceptable, intelligible but not acceptable, and not intelligible.

The respondents were 40 advanced English proficiency persons[5] who were divided into three groups: 17 native speakers of English, nine advanced English proficiency students of EFL and 14 Japanese returnees who were both almost equal to native speakers of English in English proficiency. The results (see Appendices I & J), however, were too complicated among individuals and among groups to evaluate the acceptability of subjects' answers as acceptable, or not. Therefore, only the sentences which the majority of native-speaker group accepted were treated as acceptable answers in this research[6]. The results including other two groups will be discussed in the last chapter.

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[5] The background of the respondents is as follows:

G	Age	Nationality	Native language	G	Age	Nationality	Native language
M	21-25	Britain	English	M	31-35	China	Chinese
M	56-60	USA	English	M	26-30	China	Chinese
M	51-55	France	French/English	M	over 35	China	Chinese
M	51-55	Australia	English	M	26-30	Mongolia	Mongol
M	51-55	USA	English	M	31-35	Indonesia	Indonesian
M	46-50	New Zealand	English	M	26-30	Thai	Thai
F	21-25	Britain	English/Cantonese	F	26-30	Japan	Japanese/English
F	21-25	USA	English	M	15-20	Japan	Japanese/English
M	15-20	USA	English	F	15-20	Japan	Japanese
M	21-25	USA	English	F	15-20	Japan	Japanese
F	21-25	USA	English	F	15-20	Japan	Japanese
M	15-20	USA	English	M	15-20	Japan	Japanese
M	26-30	USA	English	M	15-20	Japan	Japanese
F	10	USA	English	M	15-20	Japan	Japanese
F	over 35	USA	English	F	15-20	Japan	Japanese
M	over 35	USA	English	F	21-25	Japan	Japanese/English
M	21-25	Malaysian	English	M	21-25	Japan	Japanese/English
F	26-30	China	Chinese	M	21-25	Japan	Japanese/English
F	26-30	China	Chinese	F	15-20	Japan	Japanese
F	26-30	China	Chinese	F	15-20	Japan	Japanese

G = Gender

[6] 14 Japanese returnees have experienced staying in foreign countries including English-speaking countries over 10 years. Advanced EFL learners (No. 18-26) took higher education in English and their command of English is comparable to that of native speakers of English. However, unfortunately their concrete data (e.g. TOFEL score) were not available. Therefore, data from Nos. 18-40 were not used in the judgment of acceptability of the subjects' sentences, but discussed for the possibility of acceptable collocations in terms of the prospective of English as an International Language in the final chapter.

Chapter 8. Results and discussion: Phase II. Empirical research on the development of learners' collocational knowledge

8.1. Introduction

This chapter describes the statistical results of data gathered from the subjects' answers of three kinds of tests and a discussion about them from various viewpoints. The first section reports statistical results from the general vocabulary measures and the collocation measures (Appendices K & L) performed on the tests. SPSS, a statistical software tool, was used to analyze the data. The results are shown in the order of the research questions. The second section discusses the findings in light of L2 acquisition theories. The discussion is first conducted following the order of the research questions and then according to the ease or difficulty of the collocations in production and reception in the different vocabulary groups. The final section indicates pedagogical implications according to different stages of development.

8.2. Results

8.2.1. Research question 1: collocational knowledge vs. general vocabulary knowledge

Research question 1 examines whether the learners' collocational knowledge expands at the same pace as their general vocabulary knowledge. First, in order to get an overview of the whole relationship between the general vocabulary size and the receptive and productive knowledge of

collocations, their mean scores and their correlations were calculated by means of descriptive statistics and Pearson correlation. As shown in Table 45, the mean scores of the vocabulary size, the receptive collocation size and the productive collocation size were 3989.50, 40.95, and 21.72 respectively. In Table 46, the two measurements between the vocabulary size and the receptive and productive collocation size were positively correlated, r = .778, .828, p = .000 two tailed.

Table 45. Descriptive statistics: Mean scores for general vocabulary size, productive collocation size and receptive collocation size

	M	*SD*	N
Vocabulary size	3989.50	1186.030	130
Receptive collocation size	40.95	10.029	130
Productive collocation size	21.72	10.856	130

Table 46. Pearson correlation between vocabulary size and receptive and productive collocation size

		Vocabulary size	Receptive collocation size	Productive collocation size
Vocabulary size	Pearson Correlation	1.000	.778**	.828**
	p (two tailed)	.	.000	.000
	N	130	130	130
Receptive collocation size	Pearson Correlation	.778**	1.000	.794**
	p (two tailed)	.000	.	.000
	N	130	130	130
Productive collocation size	Pearson Correlation	.828**	.794**	1.000
	p (two tailed)	.000	.000	.
	N	130	130	130

** Correlation is significant at 0.01 level (two tailed)

Second, the mean scores were calculated for the four different vocabulary groups and compared by means of ANOVA and a post hoc test.

Table 47 shows the mean scores of the receptive collocation size and the productive collocation size for the four different groups individually. In Table 48, the ANOVA indicates a significant difference in the receptive and productive collocation measurements across the four different groups (F = 49.499, df = 3, p = .000 in receptive knowledge of collocations, F = 73.513, df = 3, p = .000 in productive knowledge of collocations). Furthermore, in order to access pairwise differences among the four levels for the general vocabulary size, a Tukey's test, one of the post hoc tests, was conducted. Table 49 shows that the receptive knowledge of collocations and the productive knowledge of collocations differ significantly among all the four vocabulary levels.

Table 47. Descriptive statistics: Mean scores for receptive collocation size and productive collocation size of the four different vocabulary level groups

	Voc level groups	*M*	*SD*	N
Receptive collocation size	2000	30.77	5.518	31
	3000	32.23	8.774	26
	4000	43.15	6.814	41
	5000	51.03	6.378	32
	total	40.95	10.029	130
Productive collocation size	2000	9.42	4.365	31
	3000	16.88	6.901	26
	4000	25.66	6.056	41
	5000	32.53	8.610	32
	total	21.72	10.856	130

Table 48. One-Way ANOVA results for the relationship between the receptive and productive collocation sizes of the four different vocabulary groups

		Sum of Squares	*df*	Mean square	*F*	Sig.
Receptive collocation size	Between groups	7019.598	3	2339.866	49.499	.000
	Within groups	5956.125	126	47.271		
	Total	12975.723	129			
Productive collocation size	Between groups	9674.640	3	3224.880	73.513	.000
	Within groups	5527.390	126	43.868		
	Total	15202.031	129			

Table 49. Tukey's HSD tests for the relationship of receptive and productive collocation sizes of the four different vocabulary groups

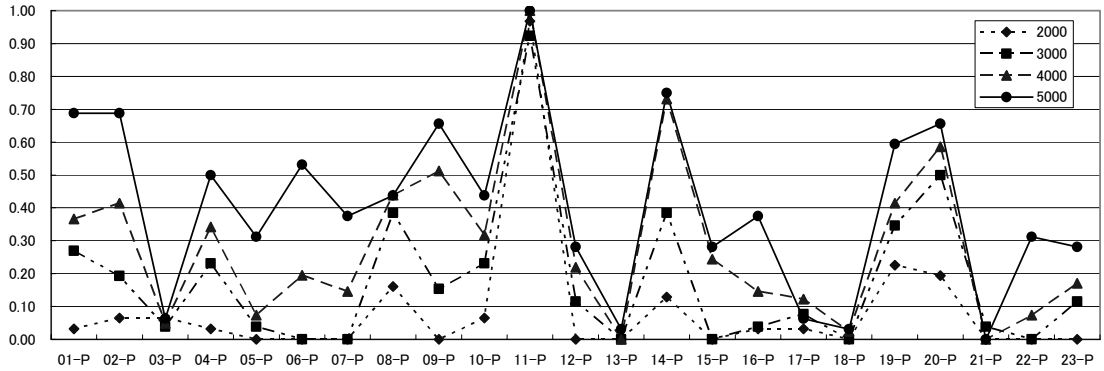
Variables	(I)Voc group	(J)Voc group	Mean difference (I-J)	Sig.
Receptive collocation size	2000	3000	-6.46 (**)	.003
		4000	-12.37 (**)	.000
		5000	-20.26 (**)	.000
	3000	2000	6.46 (**)	.003
		4000	-5.92 (**)	.004
		5000	-13.80 (**)	.000
	4000	2000	12.37 (**)	.000
		3000	5.92 (**)	.004
		5000	-7.88 (**)	.000
	5000	2000	20.26 (**)	.000
		3000	13.80 (**)	.000
		4000	7.88 (**)	.000
Productive collocation size	2000	3000	-7.47 (**)	.000
		4000	-16.24 (**)	.000
		5000	-23.11 (**)	.000
	3000	2000	7.47 (**)	.000
		4000	-8.77 (**)	.000
		5000	-15.65 (**)	.000
	4000	2000	16.24 (**)	.000
		3000	8.77 (**)	.000
		5000	-6.87 (**)	.000
	5000	2000	23.11 (**)	.000
		3000	15.65 (**)	.000
		4000	6.87 (**)	.000

(**) The mean difference is significant at the .01 level.

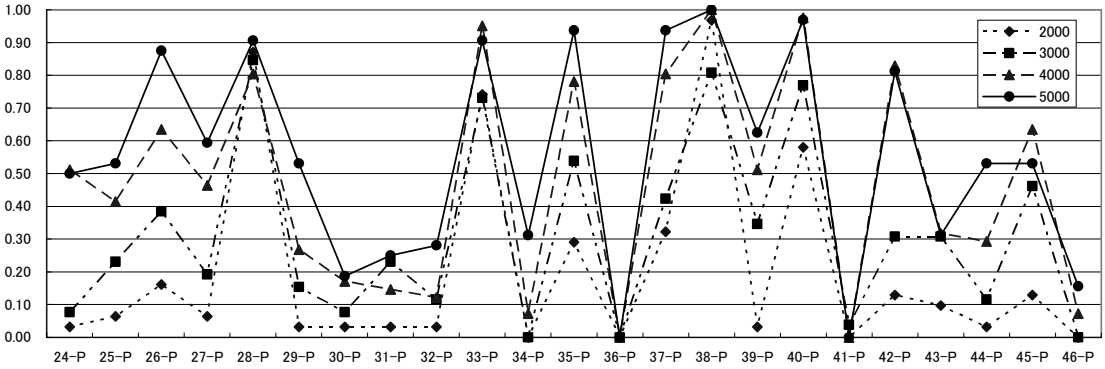
Third, the percentage of correct answers of each collocation in the receptive and productive collocation tests was compared with each other in different vocabulary level groups. In Table 50, there were some collocations in which larger vocabulary level learners could not produce more correct answers than those of lower vocabulary level. The percentage of correct answers of such collocations was extremely high or low and they were generally acquired so easily or difficultly regardless of learners' vocabulary levels. In the receptive collocation test, Table 51 shows that there were more collocations in which less large vocabulary level learners could produce

Table 50. Percentage of correct answers of each collocation in the four different vocabulary level groups－in production (with graph)

	01-P	02-P	03-P	04-P	05-P	06-P	07-P	08-P	09-P	10-P	11-P	12-P	13-P	14-P	15-P	16-P	17-P	18-P	19-P	20-P	21-P	22-P	23-P
2000	0.03	0.06	0.06	0.03	0.00	0.00	0.00	0.16	0.00	0.06	0.97	0.00	0.00	0.13	0.00	0.03	0.03	0.00	0.23	0.19	0.00	0.00	0.00
3000	0.27	0.19	0.04	0.23	0.04	0.00	0.00	0.38	0.15	0.23	0.92	0.12	0.00	0.38	0.00	0.04	0.08	0.00	0.35	0.50	0.04	0.00	0.12
4000	0.37	0.41	0.05	0.34	0.07	0.20	0.15	0.44	0.51	0.32	1.00	0.22	0.00	0.73	0.24	0.15	0.12	0.02	0.41	0.59	0.00	0.07	0.17
5000	0.69	0.69	0.06	0.50	0.31	0.53	0.38	0.44	0.66	0.44	1.00	0.28	0.03	0.75	0.28	0.38	0.06	0.03	0.59	0.66	0.00	0.31	0.28



	24-P	25-P	26-P	27-P	28-P	29-P	30-P	31-P	32-P	33-P	34-P	35-P	36-P	37-P	38-P	39-P	40-P	41-P	42-P	43-P	44-P	45-P	46-P
2000	0.03	0.06	0.16	0.06	0.87	0.03	0.03	0.03	0.03	0.74	0.00	0.29	0.00	0.32	0.97	0.03	0.58	0.00	0.13	0.10	0.03	0.13	0.00
3000	0.08	0.23	0.38	0.19	0.85	0.15	0.08	0.23	0.12	0.73	0.00	0.54	0.00	0.42	0.81	0.35	0.77	0.04	0.31	0.31	0.12	0.46	0.00
4000	0.51	0.41	0.63	0.46	0.80	0.27	0.17	0.15	0.12	0.95	0.07	0.78	0.00	0.80	1.00	0.51	0.98	0.00	0.83	0.32	0.29	0.63	0.07
5000	0.50	0.53	0.88	0.59	0.91	0.53	0.19	0.25	0.28	0.91	0.31	0.94	0.00	0.94	1.00	0.63	0.97	0.00	0.81	0.31	0.53	0.53	0.16



	47-P	48-P	49-P	50-P	51-P	52-P	53-P	54-P	55-P	56-P	57-P	58-P	59-P	60-P	61-P	62-P	63-P	64-P	65-P	66-P	67-P	68-P
2000	0.10	0.16	0.06	0.00	0.00	0.84	0.13	0.35	0.00	0.42	0.00	0.03	0.48	0.00	0.03	0.03	0.06	0.00	0.00	0.00	0.00	0.06
3000	0.46	0.42	0.27	0.00	0.04	0.96	0.50	0.50	0.04	0.69	0.08	0.19	0.62	0.04	0.08	0.00	0.15	0.00	0.23	0.00	0.08	0.31
4000	0.80	0.78	0.39	0.00	0.02	0.95	0.59	0.83	0.05	0.71	0.15	0.51	0.76	0.12	0.29	0.02	0.34	0.00	0.34	0.00	0.07	0.56
5000	0.91	0.69	0.63	0.00	0.16	1.00	0.69	0.78	0.44	0.81	0.41	0.63	0.91	0.19	0.34	0.13	0.53	0.00	0.59	0.09	0.16	0.44

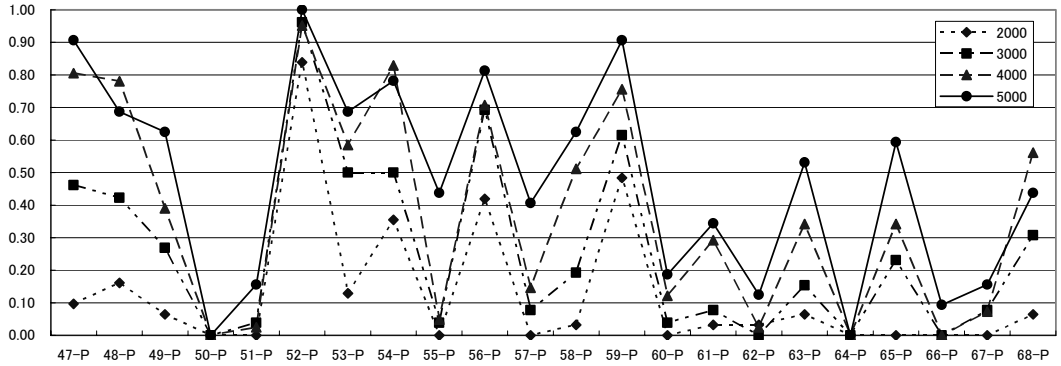
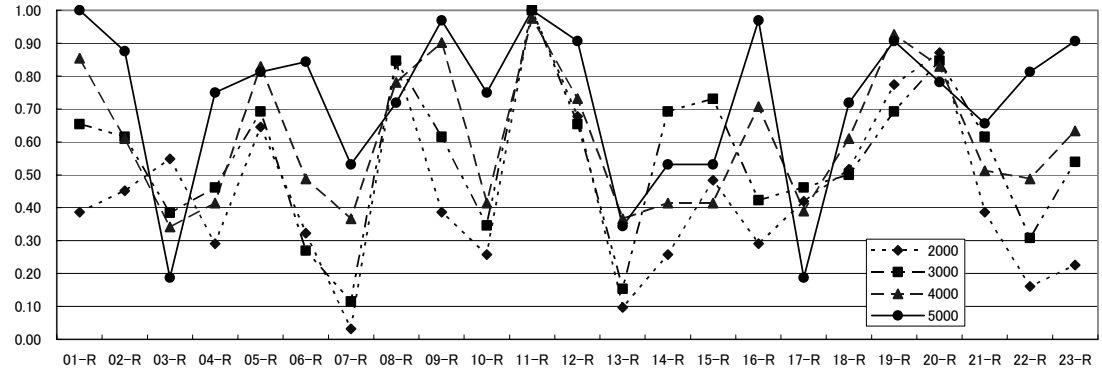
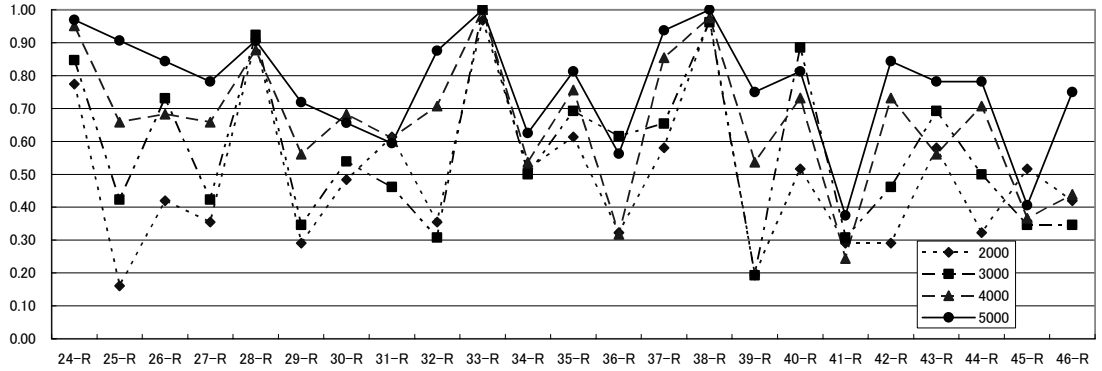


Table 51. Percentage of correct answers of each collocation in the four different vocabulary level groups－in reception (with graph)

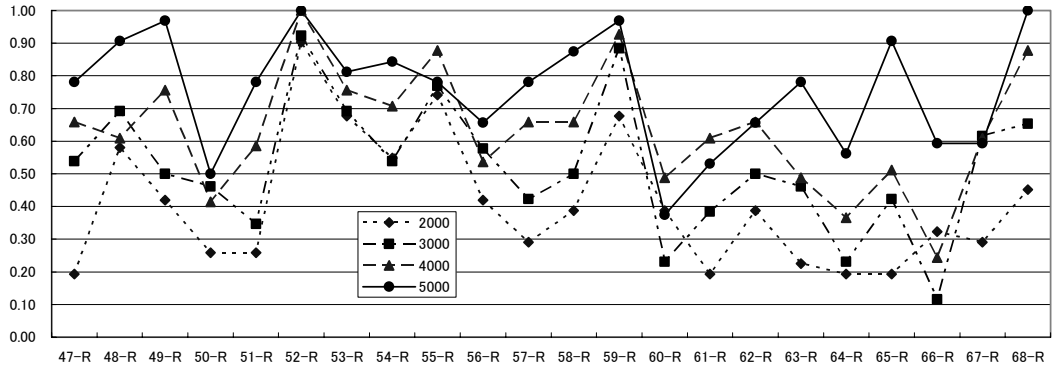
	01-R	02-R	03-R	04-R	05-R	06-R	07-R	08-R	09-R	10-R	11-R	12-R	13-R	14-R	15-R	16-R	17-R	18-R	19-R	20-R	21-R	22-R	23-R
2000	0.39	0.45	0.55	0.29	0.65	0.32	0.03	0.84	0.39	0.26	1.00	0.68	0.10	0.26	0.48	0.29	0.42	0.52	0.77	0.87	0.39	0.16	0.23
3000	0.65	0.62	0.38	0.46	0.69	0.27	0.12	0.85	0.62	0.35	1.00	0.65	0.15	0.69	0.73	0.42	0.46	0.50	0.69	0.85	0.62	0.31	0.54
4000	0.85	0.61	0.34	0.41	0.83	0.49	0.37	0.78	0.90	0.41	0.98	0.73	0.37	0.41	0.41	0.71	0.39	0.61	0.93	0.83	0.51	0.49	0.63
5000	1.00	0.88	0.19	0.75	0.81	0.84	0.53	0.72	0.97	0.75	1.00	0.91	0.34	0.53	0.53	0.97	0.19	0.72	0.91	0.78	0.66	0.81	0.91



	24-R	25-R	26-R	27-R	28-R	29-R	30-R	31-R	32-R	33-R	34-R	35-R	36-R	37-R	38-R	39-R	40-R	41-R	42-R	43-R	44-R	45-R	46-R
2000	0.77	0.16	0.42	0.35	0.90	0.29	0.48	0.61	0.35	0.97	0.52	0.61	0.32	0.58	0.97	0.19	0.52	0.29	0.29	0.58	0.32	0.52	0.42
3000	0.85	0.42	0.73	0.42	0.92	0.35	0.54	0.46	0.31	1.00	0.50	0.69	0.62	0.65	0.96	0.19	0.88	0.31	0.46	0.69	0.50	0.35	0.35
4000	0.95	0.66	0.68	0.66	0.88	0.56	0.68	0.61	0.71	1.00	0.54	0.76	0.32	0.85	0.98	0.54	0.73	0.24	0.73	0.56	0.71	0.37	0.44
5000	0.97	0.91	0.84	0.78	0.91	0.72	0.66	0.59	0.88	1.00	0.63	0.81	0.56	0.94	1.00	0.75	0.81	0.38	0.84	0.78	0.78	0.41	0.75



	47-R	48-R	49-R	50-R	51-R	52-R	53-R	54-R	55-R	56-R	57-R	58-R	59-R	60-R	61-R	62-R	63-R	64-R	65-R	66-R	67-R	68-R
2000	0.19	0.58	0.42	0.26	0.26	0.90	0.68	0.55	0.74	0.42	0.29	0.39	0.68	0.39	0.19	0.39	0.23	0.19	0.19	0.32	0.29	0.45
3000	0.54	0.69	0.50	0.46	0.35	0.92	0.69	0.54	0.77	0.58	0.42	0.50	0.88	0.23	0.38	0.50	0.46	0.23	0.42	0.12	0.62	0.65
4000	0.66	0.61	0.76	0.41	0.59	1.00	0.76	0.71	0.88	0.54	0.66	0.66	0.93	0.49	0.61	0.66	0.49	0.37	0.51	0.24	0.61	0.88
5000	0.78	0.91	0.97	0.50	0.78	1.00	0.81	0.84	0.78	0.66	0.78	0.88	0.97	0.38	0.53	0.66	0.78	0.56	0.91	0.59	0.59	1.00



more correct answers than larger vocabulary level learners. Thus, Tables and Graphs show that different collocations were acquired in different ways, although the positive correlation of vocabulary knowledge and the receptive and productive knowledge of collocations were statistically proved in the first two statistical analysis (see section 8.3).

Judging from the statistical results mentioned above, collocational knowledge is developed steadily in both the productive and receptive aspects as the general vocabulary knowledge is wider. Although the contrary to this finding occurs in some collocations, it cannot be denied that the larger the learners' vocabulary is, the more collocational knowledge in both productive and receptive aspects they tend to acquire.

8.2.2. Research question 2:
Receptive knowledge of collocations vs. productive knowledge of collocations

Research question 2 seeks to determine how the learners' receptive and productive aspects of collocational knowledge are related to each other for various types of collocations at different stages of language development. First, the correlation between the general vocabulary size and the whole receptive and productive collocation size was examined. According to Table 46 seen in research question 1, the positive correlation between the receptive knowledge of collocations and the productive knowledge of collocations was indicated.

Second, in order to relate these two measures of different vocabulary knowledge, they were compared within the different vocabulary groups by means of the *t* test. As Table 52 indicates, the result of a two-tailed paired

sample *t* test confirmed the research question, (t = 23.272, 20.636, 16.804, 11.969, p = .000). In short, the learners' receptive knowledge of collocations is generally broader than their productive knowledge of collocations at any stage of language development.

Table 52. Comparison of receptive knowledge of collocations (R) and productive knowledge of collocations (P) within different vocabulary groups (*t* test)

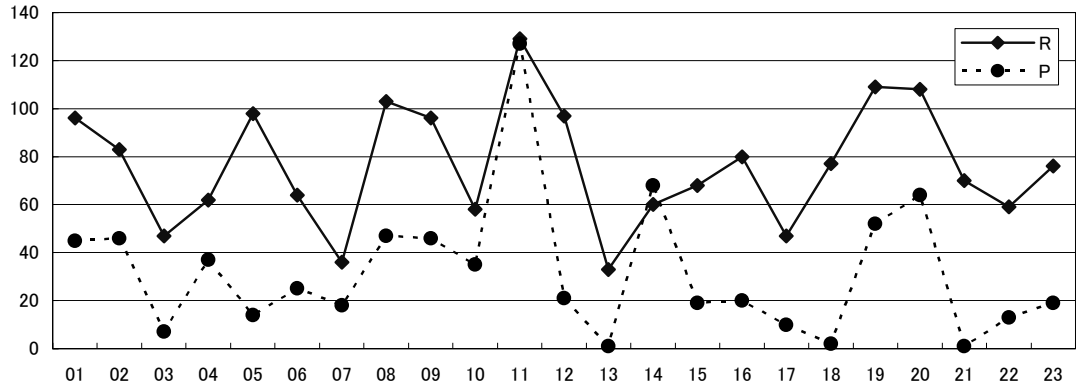
		M	*SD*	*t (two-tailed)*	*df*	Sig
2000 voc group	R-P	21.35	5.109	23.272	30	.000
3000 voc group	R-P	20.35	5.027	20.636	25	.000
4000 voc group	R-P	17.49	6.664	16.804	40	.000
5000 voc group	R-P	18.50	8.744	11.969	31	.000

Third, in order to examine the receptive and productive knowledge of different types of collocations, a comparison of the percentage of correct answers in the receptive and the productive collocation tests was made. Table 53 indicates that the receptive knowledge of collocations was broader than productive knowledge of collocations in each collocation and only four types of collocations shows contrary evidences (see section 8.3).

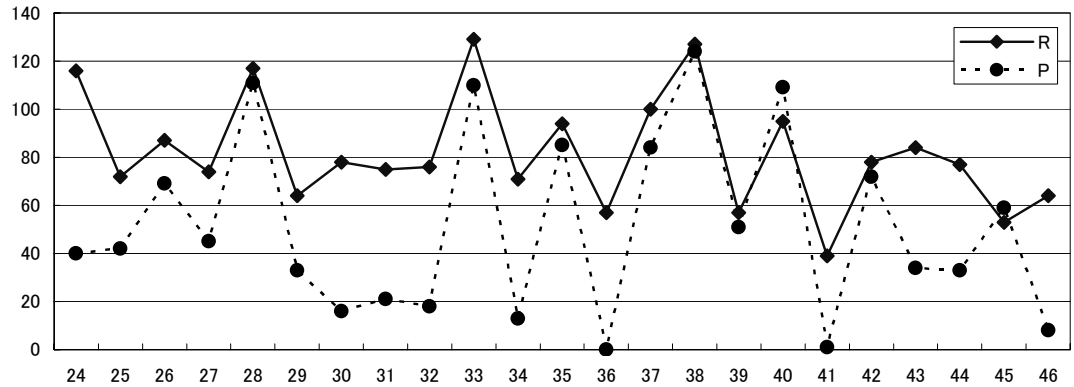
Judging from the above statistical results, research question 2 proved to be generally true, although the four types of collocations were exceptions. It can be said that receptive knowledge of collocations are deeper than productive knowledge of collocations at all the different vocabulary groups, and that the learners' productive knowledge of collocations becomes broader as they learn more receptive collocations.

Table 53. Percentage of correct answers of each collocation in reception and production (with graph)

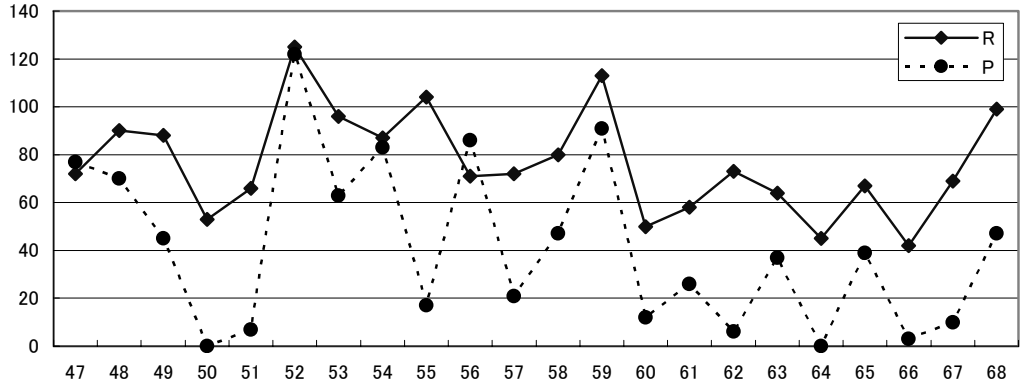
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
R	96	83	47	62	98	64	36	103	96	58	129	97	33	60	68	80	47	77	109	108	70	59	76
P	45	46	7	37	14	25	18	47	46	35	127	21	1	68	19	20	10	2	52	64	1	13	19



	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
R	116	72	87	74	117	64	78	75	76	129	71	94	57	100	127	57	95	39	78	84	77	53	64
P	40	42	69	45	111	33	16	21	18	110	13	85	0	84	124	51	109	1	72	34	33	59	8



	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
R	72	90	88	53	66	125	96	87	104	71	72	80	113	50	58	73	64	45	67	42	69	99
P	77	70	45	0	7	122	63	83	17	86	21	47	91	12	26	6	37	0	39	3	10	47



8.2.3. Research question 3

What factors influence learners' collocation acquisition?

Research question 3 surveys influential factors for learners' collocation acquisition. In answering the research question 1, it was confirmed that collocational knowledge and the general vocabulary knowledge were closely related and the more learners' general vocabulary knowledge increased, the more collocational knowledge was acquired. However, some collocations were not acquired according to the development of learners' general vocabulary knowledge. In research question 2, it was proved that the receptive and productive collocational knowledge was intimately interrelated, and that the more receptive knowledge of collocations was learned, the broader productive knowledge of collocations was. Yet, it was shown that some collocations in the productive collocation test were answered more correctly than those in the receptive collocation test. These two research questions indicated that some collocations could not be explained by learners' shortage of general vocabulary knowledge, in other words, the acquisition was influenced by some other factors. This research question is to investigate what those factors are. In order to do it, correct answers in the receptive collocation test and the productive collocation test were examined in terms of L1 equivalence, semantic opacity of collocations, collocational restriction, delexicalized verbs, core meanings of verbs and nouns, and collocational structure, which were regarded as influential factors for collocation acquisition by some researchers referred to in Chapter 3. The results were summarized in Tables 54 and 55 (for productive test) and Tables 56 and 57 (for receptive test).

First, in order to confirm influential factors for the productive knowledge

of collocations, a Kruskal Wallis analysis of variance[1] was conducted for the semantic opacity, and Mann-Whitney U analyses for other features. In the semantic opacity, the Kruskal-Wallis analysis of variance (in Table 54) revealed that the group difference was significant, $\chi^2(2) = 17.550$, $p < .01$. To determine the significant differences, Mann-Whitney U analyses were conducted as the post hoc test. After Bonferroni's correction, the results revealed that the differences between transparent collocations and half transparent collocations and between transparent collocations and opaque collocations were significant, $p = .001$, .000, while the difference between half transparent collocations and opaque collocations was not significant. This means that if even one constituent of collocations is not understood, they will be difficult to acquire. Thus, it was confirmed that semantic opacity is an influential factor for productive collocation acquisition, and that collocations whose constituents are half transparent or opaque are more difficult to acquire, while those whose constituents are transparent are more easily acquired.

Mann-Whitney U analyses were conducted to examine whether other features influence the development of learners' productive knowledge of collocations. The analyses revealed a significant difference in L1 equivalence ($U = 157.500$, $p < .01$), delexicalized verbs ($U = 287.500$, $p < .01$), core meanings ($U = 213.000$, $p < .01$ for core verbs, $U = 151.500$, $p < .05$ for core nouns), and collocational structure ($U = 239.500$, $p < .01$). Only one feature, collocational restriction proved not to be significant. ($U = 569.500$, p

[1] In research question 3, Kruskal Wallis analysis of variance and Mann-Whitney U analysis were used because the smallest number of two or three sub groups was 9l and they were independent.

= .920). Therefore, it follows that collocations will be more easily acquired when they are structurally simple, they have Japanese equivalents, and their constituents consist of lexical verbs, or verbs and nouns with core meanings.

To summarize the results shown above, statistically significant are the group differences in terms of all the factors except collocational restrictions and they would influence the development of productive collocation acquisition for Japanese learners of English.

Table 54. Kruskal Wallis analysis of variance for the sub category difference in the semantic opacity (Productive test)

Features	Sub categories	N	Mean ranks	*df*	χ^2	Sig
Semantic opacity	opaque	9	19.56	2	17.550	.000
	transparent	35	44.04			
	half-transparent	24	26.19			

The difference is significant between the opaque group and the transparent group and between the half-transparent group and the transparent group at the .00166 level, according to Bonferroni's correction.

Table 55. Mann-Whitney U analyses for the sub category difference in L1 equivalence, collocational restriction, delexicalized verbs, core meanings of verbs and nouns and collocational structure (Productive test)

		N	Mean ranks	*U*	Sig.
L1 equivalence	equivalent	32	47.58	157.500	.000
	not equivalent	36	22.88		
Collocational restriction	substitutable	34	34.75	569.500	.920
	not substitutable	34	34.25		
Delexicalized verbs	delexical	41	28.01	287.500	.001
	lexical	27	44.35		
Core meanings (verbs)	core	34	45.24	213.000	.000
	peripheral	34	23.76		
Core meanings (nouns)	core	58	36.89	151.500	.015
	peripheral	10	20.65		
Collocational structure	structurally complex	20	22,48	239.500	.001
	structurally simple	48	39.51		

Next, some factors for the receptive knowledge of collocations were analyzed by means of either a Kruskal Wallis analysis or a Mann-Whitney U analysis. As the format of the receptive collocation test was multiple choice without any Japanese translation aids, L1 equivalence and collocational structure might have little to do with the scores of correct answers. However, all the factors which were examined in productive knowledge of collocations were statistically calculated to make sure that they were related to the development of learners' receptive knowledge of collocations.

As Table 56 indicates, the Kruskal-Wallis analysis of variance revealed that the group difference of semantic opacity was not significant, $\chi^2(2)$ = 5.051, p = 080. Therefore, it is shown that semantic opacity is not an influential factor for receptive collocation acquisition.

Mann-Whitney U analyses were carried out to examine whether other features influence the development of the learner's receptive knowledge of collocations. As Table 57 indicates there were significant differences in L1 equivalence (U = 380.500, p < .05), delexicalized verbs (U = 388.000, p < .05), and core verbs (U = 362.000, p < .01). On the contrary, collocational restriction, core nouns, and collocational structure were not significantly different.

Table 56. Kruskal Wallis analysis of variance for the sub category difference in the semantic opacity (Receptive test)

Features	Sub categories	N	Mean ranks	*df*	χ^2	Sig
Semantic opacity	opaque	9	30.00	2	5.051	.080
	transparent	35	39.71			
	half-transparent	24	28.58			

Table 57. Mann-Whitney U analyses for the sub category difference in L1 equivalence, collocational restriction, delexicalized verbs, core meanings of verbs and nouns and collocational structure (Receptive test)

		N	Mean ranks	*U*	Sig.
L1 equivalence	equivalent	32	40.61	380.500	.016
	not equivalent	36	29.07		
Collocational restriction	substitutable	34	32.90	523.500	.508
	not substitutable	34	36.10		
Delexicalized verbs	delexical	41	30.46	388.000	.038
	lexical	27	40.63		
Core meanings (verbs)	core	34	40.85	362.000	.008
	peripheral	34	28.15		
Core meanings (nouns)	core	58	35.98	151.500	.139
	peripheral	10	25.90		
Collocational structure	structurally complex	20	31908	428.000	.489
	structurally simple	48	35.58		

Judging from all the statistical data shown above to answer research question 3, all the features except collocational restriction proved to be influential factors for the development of productive knowledge of collocations, while L1 equivalence, delexicalized verbs and core meanings of verbs were influential for the development of receptive knowledge of collocations.

8.2.4. Research question 4

How important is collocational knowledge in the acquisition of communication skills?

Research question 4 has a close relation to research question 3 in that it investigates how important collocational knowledge is in the acquisition of English communication skills for Japanese learners of English and what kind of ways learners express themselves with other than collocations. First, ANOVAs and Tukey's tests were conducted to examine descriptive statistics, the differences of alternative collocations and other expressions learners

produced instead of target collocations among the different vocabulary level groups.

Table 58. Descriptive statistics: Mean scores for measurements of alternative collocations and other expressions

Ways	Voc level	M	*SD*	N
Alternative collocations	2000	1.06	1.263	31
	3000	3.23	2.612	26
	4000	4.37	1.920	41
	5000	4.09	1.924	32
	total	3.28	2.334	130
Other expressions	2000	.23	.497	31
	3000	.92	1.324	26
	4000	.76	.830	41
	5000	.44	.840	32
	total	.58	.922	130

Table 59. One-Way ANOVA results for measurements of alternative collocations and other expressions

		Sum of Squares	*df*	Mean square	*F*	Sig.
Alternative collocations	Between groups	221.752	3	73.917	19.374	.000
	Within groups	480.717	126	3.815		
	Total	702.469	129			
Other expressions	Between groups	8.868	3	2.956	3.699	.014
	Within groups	100.701	126	.799		
	Total	109.569	129			

In the alternative collocations, mean scores in the four different vocabulary groups (Table 58) were 1.06, 3.23, 4.37 and 4.09 individually and they seemed to be statistically significant (p = .000), as Table 59 indicated. However, the Tukey's tests (Table 60) revealed that the difference between the 2000 vocabulary group and other vocabulary groups (3000, 4000 and 5000 vocabulary groups) were significant (p < .001). Therefore, learners whose vocabulary level was over 3000 used almost the same number of alternative collocations, while learners who had a 2000 vocabulary level

could produce fewer alternative collocations.

Table 60. Tukey's HSD tests for measurements of alternative collocations and other expressions

Variables	(I)Voc group	(J)Voc group	Mean difference (I-J)	Sig.
Alternative collocations	2000	3000	-2.17 (**)	.000
		4000	-3.30 (**)	.000
		5000	-3.03 (**)	.000
	3000	2000	2.17 (**)	.000
		4000	-1.14	.099
		5000	-.86	.342
	4000	2000	3.30 (**)	.000
		3000	1.14	.099
		5000	.27	.935
	5000	2000	3.03 (**)	.000
		3000	.86	.342
		4000	-.27	.935
Other expressions	2000	3000	-.70 (*)	.021
		4000	-.53	.066
		5000	-.21	.784
	3000	2000	.70 (*)	.021
		4000	.17	.879
		5000	.49	.173
	4000	2000	.53	.066
		3000	-.17	.879
		5000	.32	.434
	5000	2000	.21	.784
		3000	-.49	.173
		4000	-.32	.434

(*) The mean difference is significant at the .05 level
(**) The mean difference is significant at the .01 level

According to Table 58, the mean scores of other expressions of the four different vocabulary groups were very low (*M* = 0.23, 0.92, 0.76, and 0.44 individually) regardless of the levels of the learners' general vocabulary knowledge. It seemed that learners did not express themselves with other expressions. The one-way ANOVAs (Table 59) and the Tukey's tests (Table 60) indicated that other expressions learners produced were not significantly different across the four different vocabulary groups except for

one slight difference between the 2000 vocabulary group and the 3000 vocabulary group ($p < .05$). In short, alternatives were not the way learners at any vocabulary level generally use when they did not know the collocations.

It was so far found that learners with more general vocabulary knowledge would successfully express themselves with target collocations and over 3000 vocabulary level learners could use a small number of alternative collocations, but it was very difficult for any learner to paraphrase or describe expressions in alternative ways when they did not know them. When learners did not know how to express themselves, what do they do? Error analysis was carried out in order to find it. Errors were grouped into such type as L1 transfer, blank, structurally errors and verbalized nouns which used only nouns as verbs instead of verb-noun combinations. Table 61 shows the number and percentage of incorrect answers and blanks all the subjects produced.

Table 61. Number and percentage of incorrect answers and blanks

	type of correct or incorrect answers	N	%
incorrect answers	incorrect answers influenced by L1 transfer	197	3.3
	incorrect answers including verbalized nouns	573	9.6
	incorrect answers lacking appropriate collocational structures which could distort meanings	351	5.9
	incorrect answers	1553	26.1
blank		3266	55.0
	total		100.0

As shown in Tables 62, 63 and 64 below, leaving an answer blank occurred most often to be a popular way to avoid errors when the subjects are not sure how to express themselves. Table 62 shows that mean scores of

blanks at each level were 43.29, 30.19, 18.66 and 11.69, and the lower the learners' vocabulary levels were, the more they tended to resort to blanks. Tables 63 and 64 also confirmed that the numbers of the blanks among the groups were significantly different except between the 4000 vocabulary level group and the 5000 vocabulary level group.

As for L1 transfer, the statistic data shows somewhat complicated results in Tables 62, 63, and 64. In Table 62, the mean scores of L1 transfer slightly rose among the 2000, 3000 and 4000 vocabulary level groups, but they dropped at 5000 vocabulary group. A significant difference was confirmed only between the 2000 vocabulary level group and the 4000 vocabulary level group. In a statistical sense, we cannot say that the higher the learners' vocabulary levels were, the more L1 transfer they made, causing errors.

Verbalized nouns are frequently used regardless of the level of the general vocabulary knowledge in unknown collocations. Table 62 gave an indication of almost the same mean scores among the four groups (M = 4.48, 4.73, 4.32 and 4.19). The difference of verbalized nouns among groups was not confirmed in Tables 63 and 64, showing that verbalized nouns were equally used in any different vocabulary level group.

General errors did not prove to have statistically significant differences, either. Mean scores were not much different (M = 13.32, 16.38, 17.73 and 17.50) and the ANOVAs and the Tukey's tests also revealed that the group differences were not significant. Therefore, we cannot say that the less vocabulary the learners had, the more errors they made.

Table 62. Descriptive statistics: Mean scores for frequency of ways used in unknowing collocations

Ways	Voc level	M	*SD*	N
Blank	2000	43.29	12.464	31
	3000	30.19	16.115	26
	4000	18.66	13.404	41
	5000	11.69	11.880	32
	total	25.12	17.850	130
L1 negative transfer	2000	.84	.860	31
	3000	1.54	1.529	26
	4000	1.93	1.367	41
	5000	1.63	1.129	32
	total	1.52	1.295	130
Verbalized nouns	total	4.48	4.234	31
	3000	4.73	3.040	26
	4000	4.32	2.752	41
	5000	4.19	3.217	32
	total	4.41	3.291	130
General error	2000	13.32	9.156	31
	3000	16.38	9.741	26
	4000	17.73	8.602	41
	5000	17.50	6.350	32
	total	16.35	8.582	130
Structure errors	2000	.90	1.076	31
	3000	2.12	1.818	26
	4000	3.24	1.881	41
	5000	4.22	2.121	32
	total	2.70	2.145	130

Table 63. One-Way ANOVA results measuring frequency of ways used to deal with unknown collocations

		Sum of Squares	*df*	Mean square	*F*	Sig.
Blank	Between groups	18389.511	3	6129.837	34.003	.000
	Within groups	227145.520	126	180.274		
	Total	41104.031	129			
L1 transfer	Between groups	21.534	3	7.178	4.640	.004
	Within groups	194.936	126	1.547		
	Total	216.469	129			
Verbalized nouns	Between groups	4.782	3	1.594	.144	.933
	Within groups	1392.610	126	11.052		
	Total	1397.392	129			
General errors	Between groups	404.746	3	134.915	1.869	.138
	Within groups	9096.977	126	72.198		
	Total	9501.723	129			
Structure errors	Between groups	194.907	3	64.969	20.548	.000
	Within groups	398.393	126	3.162		
	Total	593.300	129			

Table 64. Tukey's HSD tests for the frequency of ways used to deal with unknown collocations

Variables	(I)voc group	(J)voc group	Mean difference (I-J)	Sig.
Blank	2000	3000	13.10 (**)	.002
		4000	24.63(**)	.000
		5000	31.60(**)	.000
	3000	2000	-13.10 (**)	.002
		4000	11.53 (**)	.005
		5000	18.50 (**)	.000
	4000	2000	-24.63 (**)	.000
		3000	-11.53 (**)	.005
		5000	6.97	.129
	5000	2000	-31.60 (**)	.000
		3000	-18.50 (**)	.000
		4000	-6.97	.129
L1 transfer	2000	3000	-.70	.154
		4000	-1.09(**)	.002
		5000	-.79	.063
	3000	2000	.70	.154
		4000	-.39	.599
		5000	-.09	.994
	4000	2000	1.09 (**)	.002
		3000	.39	.599
		5000	.30	.733
	5000	2000	.79	.063
		3000	.09	.994
		4000	-.30	.733
Verbalized nouns	2000	3000	-.25	.992
		4000	.17	.997
		5000	.30	.985
	3000	2000	.25	.992
		4000	.41	.960
		5000	.54	.926
	4000	2000	-.17	.997
		3000	-.41	.960
		5000	.13	.998
	5000	2000	-.30	.985
		3000	-.54	.926
		4000	-.13	.998
General errors	2000	3000	-3.06	.530
		4000	-4.41	.134
		5000	-4.18	.212
	3000	2000	3.06	.530
		4000	-1.35	.921
		5000	-1.12	.960
	4000	2000	4.41	.134
		3000	1.35	.921
		5000	.23	.999
	5000	2000	4.18	.212
		3000	1.12	.960
		4000	-.23	.999
Structure errors	2000	3000	-1.21	.055
		4000	-2.34 (**)	.000
		5000	-3.32 (**)	.000
	3000	2000	1.21	.055
		4000	-1.13	.060
		5000	-2.10 (**)	.000
	4000	2000	2.34 (**)	.000
		3000	1.13	.060
		5000	-.97	.098
	5000	2000	3.32 (**)	.000
		3000	2.10 (**)	.000
		4000	.97	.098

(**)The mean difference is significant at the .01 level

Structure errors, however, confirmed a significant difference. Mean scores slightly increased (*M*=.90, 2.12, 3.24 and 4.22) and the ANOVAs and the Tukey's tests also indicated that there was a significant difference between the 2000 vocabulary level group and the 4000 and 5000 vocabulary level groups and between the 3000 vocabulary level group and the 5000 vocabulary level group. This leads to the observation that the higher the learners' vocabulary level was, the more structure errors they tended to make although the differences between adjacent groups were not significant.

Judging from all the statistical data shown in research question 4, learners tended to be *error avoiders*, that is, they used blanks, avoiding paraphrasing and describing answers with synonymous words when they did not know collocations. In short, only whether they knew proper collocations or not influenced their correct answers.

8.2.5. Extra findings

In addition to answering the research questions, examined was whether learners could use appropriate adjectives connected with correct collocations. Sixteen out of the 68 target collocations were connected with adjectives such as *make a big decision* and *do a good job*. Producing correct collocations with appropriate adjectives was much more difficult for learners. The difference of the use of appropriate adjectives among the vocabulary groups was examined by means of the descriptive statistics, the ANOVAs and the Tukey's tests.

Table 65. Descriptive statistics: Mean scores for appropriate adjectives with correct collocations

	Voc level	*M*	*SD*	N
Adjectives	2000	1.00	.966	31
	3000	1.88	1.532	26
	4000	2.88	1.503	41
	5000	3.34	2.119	32
	total	2.35	1.807	130

Table 66. One-Way ANOVA results for appropriate adjectives with correct collocations

		Sum of Squares	*df*	Mean square	*F*	Sig.
Adjectives	Between groups	105.160	3	35.053	13.965	.000
	Within groups	316.263	126	2.510		
	Total	421.423	129			

Table 67. Tukey's HSD tests for appropriate adjectives with correct collocations

Variable	(I)Voc group	(J)Voc group	Mean difference (I-J)	Sig.
Adjectives	2000	3000	-.88	.159
		4000	-1.88 (**)	.000
		5000	-2.34 (**)	.000
	3000	2000	.88	.159
		4000	-.99	.065
		5000	-1.46 (**)	.004
	4000	2000	1.88 (**)	.000
		3000	.99	.065
		5000	-.47	.599
	5000	2000	2.34 (**)	.000
		3000	1.46 (**)	.004
		4000	.47	.599

(**)The mean difference is significant at the .01 level

As Table 65 indicates, the mean scores of use of appropriate adjectives in the four different vocabulary groups were very low (*M* = 1.00, 1.88, 2.88, and 3.34 individually) regardless of the levels of the general vocabulary knowledge, but they seemed to increase slightly. The one-way ANOVAs (Table 66) and Tukey's tests (Table 67) revealed that the differences significant between the 2000 vocabulary group and the 4000 vocabulary

group and between the 2000 vocabulary group and the 5000 vocabulary group ($p < .05$). Therefore, learners whose vocabulary level was over 4000 could choose more appropriate adjectives with correct collocations than those who belonged to the 2000 vocabulary level group, although the use of appropriate adjectives was quite limited for all the learners.

8.3. Discussion

8.3.1. Discussion of research questions

This section contains a general discussion on the statistical findings in the previous sections in the order of the research questions.

8.3.1.1. Research question 1

Research question 1 confirmed that as learners' collocational knowledge increased as their general vocabulary knowledge increased. This finding contradicts the result of previous research. Bahns (1993) and Carolie (1998) found that learners' performance on collocation were not related to their performance on single lexical words. On the contrary, Gitsaki (1999) and Koya (1999, 2003a) proved that there was significant development of collocational knowledge as general vocabulary knowledge developed.

This contradiction can be explained by the fact that learners' collocational knowledge can be built up easily, depending on how general vocabulary is taught. Caroli (1998) explains that her finding may result from the traditional neglect of presenting new vocabulary with some of its most frequent collocates in EFL vocabulary instruction. She adds the present situation of English education in Italy in which learners are usually led to grasp the basic meaning of words, but not given enough information

about the context. Her theory is supported by many researchers. Howarth (1998a, 1998b) mentions that learners should make a good use of context in order to grasp the basic meaning of words and collocations. He also pointed out that it is important that learners should be aware of the significance of collocations while they learn them. Gitsaki and Taylor (1999) argue that teachers should supply new lexical items together with frequently used collocations in context, which promotes acquisition of more collocations. Lexical Approach proponents such as Lewis (2002) and Hill (2002) have the same point of view (see Chapter 2). Learners' conscious study of collocations in a context and teachers' simultaneous instruction of new vocabulary items and their frequently co-occurring words can promote learners' acquisition of more collocations at the same pace as their expansion of general vocabulary.

Further, Twaddell (1973) and Korosadowixz-Stuzynska (1980) join Howarth (1998a, 1998b) and Gitsaki and Taylor (1999) in arguing that teaching phrase-patterns from early stages in L1 lead learners to expand their vocabulary and adapt it to L2 patterns. In order to do so, they believe that it is important to select "the most habitual parts of language use" (Twaddell, 1973, p. 63) and practice them in a certain context as early as possible in L2.

In short, learners' general vocabulary knowledge and their collocational knowledge are positively related and therefore basic vocabulary should be deliberately acquired with its frequently co-occurring words in context.

The other point concerns some collocations in which greater vocabulary level learners cannot produce more correct answers than lower vocabulary level learners in both productive and receptive collocation tests. In the productive collocation test, such collocations are not or rarely acquired by

all the vocabulary level groups. For example, in *open the door*, 97% of learners answered correctly in the 2000 vocabulary level groups, 92% in the 3000 vocabulary level groups, and 100% in the 4000 and 5000 vocabulary level groups. On the contrary, in *make a point of*, 0% of learners answered correctly in the 2000, 4000 and 5000 vocabulary level groups and 4% in the 3000 vocabulary level group. Therefore, in such collocations, the difference vocabulary levels are very little.

In the receptive collocation test, the result is different from that of the productive collocation test. Many collocations showed a complicated percentage of correct answers among the different vocabulary level groups. Because the format of the receptive collocation test was multiple choice and it had a limited number of choices, it might be easier to select correct answers. The choices might have been inappropriate. These might have affected the findings.

8.3.1.2. Research question 2

Research question 2 confirmed the common sense that receptive knowledge of collocations was generally larger than the productive one and it comes before the productive knowledge at all stages of language learning, as is mentioned by Henriksen (1999), Melka (1997), Nation (2000), Palmberg (1987), Pigott (1981) and Waring (2002). For example, Melka (1997, pp. 85-89) argues that receptive and productive vocabulary knowledge is a continuum and it reflects the notion that one has to perceive a word in reception before he/she produce it. In other words, after learners encounter a new word and gain knowledge of its pronunciation, spelling, word grammar, meaning and the use, they will be able to use it themselves.

He also classifies the continuum into four stages. Imitation and reproduction without assimilation is the first stage of recognition and in it words are repeated without any meaning. The second stage is comprehension, which is a further and more complex stage. As a word is comprehended with meanings in it, it can be perceived through reading and listening. The third stage is reproduction with assimilation, in which a word can be reproduced with meanings only if some key words are provided. Production is the final stage, in which a word can be understood so that they can be used without any trouble in speaking and writing. This continuum model has been widely supported by Henriksen (1999), Waring (2002) and many others to confirm this notion, knowledge scale test was conducted by Joe (1994, 1995), McNeill (1996), Scarcella and Zimmerman (1997).

However, all the words are not necessarily acquired along the continuum. Melka (1997) points out that the boundary between reception and production is fuzzy according to diverse linguistic and pragmatic factors. In other words, some words can be produced quickly after comprehending them and some words may be comprehended and produced at the same time. In some collocations, *say thing, write book, raise money, lose job*, the percentage of correct answers in the productive collocation test is higher than that in the receptive collocation test. This means that they may not be steadily acquired in accordance with the development of learners' general vocabulary knowledge.

The pedagogical implication of these studies is that learners should receive as much word input as possible. Krashen (1988) maintains that the larger input of words learners perceive, the more productive aspects of them are naturally acquired, which is perhaps true for the acquisition of

collocations as well. The more the receptive knowledge of collocations is developed, the broader the productive knowledge of collocations will be. Therefore, important collocations should be taught repeatedly receptively before productively.

The other implication is that different collocations should be taught in different ways. Krashen's above viewpoint cannot be realized without sufficient input of words. In Japan, however, it is quite limited in English classes in which learners have little chance to receive and produce English collocations. Some collocations are actually produced before perceived completely as the results of research question 2 shows. Therefore, different collocations should be effectively learned by teachers' focusing on their reception or production.

The other finding is that there were four collocations whose test scores in the productive test was higher than those in the receptive test and three of them, *say things*, *write books* and *lose one's job*, were all collocations whose features are *transparent*, *L1 equivalent*, *structurally simple*, having *lexical verb* and *core meanings*. In short, they are more easily acquired than other collocations. Therefore, they may be more correctly produced than perceived The fourth collocation is *raise money* and it is *half transparent*, *not L1 equivalent*, *structurally simple*, *lexical verb* and *peripheral meanings*, which are likely to cause more difficult acquisition than the features of the three collocations . However, *make money*, which was answered by many learners in the productive collocation test, was accepted as alternative collocations of *raise money*. Therefore, *raise money* was high-scored in the productive collocation test than in the receptive collocation test.

8.3.1.3. Research question 3

In research question 3 it was proved that semantic opacity, delexicalized verbs, core meanings of verbs and nouns, collocational structure and L1 equivalence were influential factors for the development of learners' productive knowledge of collocations, while delexicalized verbs, core meanings and L1 equivalence helped the development of their receptive knowledge of collocations.

Semantic opacity which means to what degrees the constituents of collocations are transparent seems to be a very important factor for learners to develop both receptive and productive knowledge of collocations. It is important to distinguish between idioms and collocations. The more opaque the constituents of a word combination are, the higher degree of idiomaticity of it is and the more likely it is regarded as an idiom. This feature causes difficulty in producing collocations, proved by the findings that collocations whose constituents had opaque or half transparent meanings were difficult to produce.

Another factor, delexicalized verbs, is closely related to semantic opacity. If verbs in verb-noun collocations have little or no meaning outside the context of their particular use, they will be difficult to understand and produce in collocations. Nesselhauf (2003) confirmed that the wrong choice of verb in collocations with a medium degree of restriction resulted in the highest rate of mistakes. Based on the finding she suggests that the focus should be on the verb in the teaching of verb-noun collocations.

Still another factor, core meanings are also intimately related to semantic opacity and deleixcalized verbs. Especially if verbs with many meanings took on little or no meaning, learners tended to face difficulty in

producing verb-noun collocations, as is pointed out by Kellerman (1979) and Lennon (1996). From a pedagogical point of view, Oikawa (1993) recommends that verbs should be focused on to understand and produce correct collocations (see section 3.2.1).

As stated above, semantic opacity, delexicalized verbs and core meanings are concerned with the meanings of the constituents of collocations. The more opaque meaning each constituent has, the more difficult it is likely to produce them.

L1 equivalence is a factor which causes L1 transfer. In other words, the similarity between L1 and L2 collocations lead to L1 positive transfer in the acquisition of L2 collocations, while the difference between them causes negative transfer. This finding has been strongly supported by many researchers (Biskup, 1992; Bahns and Eldaw, 1993; Caroli, 1998; Elyildirm, 1997; Farghal and Obidedat, 1995; Fayes-Hussein, 1990; Gitsaki, 1999; Granger, 1998; Kellerman, 1979; Nesselhauf, 2003). They argue that learners' attention should be directed to collocations which have no direct translational equivalence in L1 to facilitate explicit learning. Furthermore, Lewis (2000) and Woolard (2000) recommend to make use of positive transfer from L1 to facilitate learners' acquisition of collocations, and to use explicit learning is needed to avoid negative transfer from L1 and lessen learners' acquisition burden.

Collocational structure was also confirmed to be an influential factor for learners' acquisition of productive knowledge of collocations in that it is related to grammar. Nesselhauf (2003) suggests that it is important to teach collocations together with prepositions and articles, which have grammatically and semantically close connection to them. Woolard (2000)

proposes that collocations should be recorded with grammar in learners' notebooks because they face difficulty using prepositions in producing sentences with key collocations.

The influential factors which affect the development of learners' productive and receptive knowledge of collocations were, for the most part, within the writer's expectations because they have all been accepted by previous researchers. However, the influence of L1 equivalence on the development of learners' receptive knowledge of collocations was more than had been expected, because Japanese translation is not attached to the test and learners have to select appropriate verbs collocated with nouns from three choices without it. Concerning the relationship between L1 and L2 receptive knowledge of words, Kadota, Nakanishi, Shimamoto, Ikemura, Noro, and Yokokawa (2003, p. 129) define it as translating L2 words into L1 ones and explain that learners make use of their L1 in comprehending L2 words. Jaworski (1998, pp. 354-354) explains that the similarities and differences between languages identified by contrastive analysis should predict the areas of difficulty in L2 learning and errors in L2 reception and production, and in reception interlanguage speakers rely on L1 in interpreting the incoming utterances. Based on these researchers' arguments, the influence of L1 in the selection of correct collocations in the receptive collocation test is fully verified.

8.3.1.4. Research question 4 and extra findings

In regard to research question 4, some interesting findings were observed. First, after an overview of the correct answers, it was found that learners in all the vocabulary level groups had difficulty in paraphrasing or

describing answers with synonymous words and other expressions when they did not know the target collocations. Mochizuki et al. (2003) maintain that it is not important to acquire basic collocations because learners can communicate with other expressions without any troubles even if they do not know collocations. However, the present findings indicate that all the different vocabulary group learners had difficulty expressing things with other expressions. Moreover, data analysis confirmed that basic collocations for Japanese learners of English consist of words which are regarded as 1000 level or 2000 level basic words so that they are likely to lessen the learners' burden in acquiring many vocabulary items. This is suitable especially for secondary school students in Japan who are expected to develop their communication ability, but with a very limited vocabulary. Furthermore, many researchers also have strongly suggested the important role of collocations in communication (see Chapters 2 and 3). Hill (2000, p. 53) proposes that up to 70% of what native speakers of English say, hear, read or write is to be found in collocations. Pawley and Syder (1983, p. 192) state that native speakers of English keep hundreds of thousands of institutionalized sentence stems in their mind. In sum, teaching collocations is most effective for Japanese learners of English.

Among the vocabulary level groups, the 3000 vocabulary level learners used other expressions more frequently than any other groups, instead of either the target collocations and alternative collocations. This was against the present writer's expectation. A possible explanation for this is that 3000 vocabulary level learners had less knowledge of collocations than 4000 and 5000 vocabulary level learners. In fact, 4000 and 5000 vocabulary level learners produced target collocations more correctly than 3000 level

learners. Four thousand vocabulary level learners most produced alternative collocations, although in terms of statistics, learners whose vocabulary level was over 3000 had no significant difference in the production of alternative collocations. Therefore, 3000 vocabulary level learners had less ability producing collocations than 4000 and 5000 vocabulary level learners. As a result, they would have to resort to other expressions to compensate for their lack of collocational knowledge.

Second, L1 transfer gradually increased between 2000 vocabulary level learners and 4000 vocabulary level learners, but the tendency declined at the 5000 vocabulary level. L1 has generally a considerable influence on the way L2 is learned and used (Kellerman, 1979; Naiman, Frohlich, Todesco and Stern, 1978 quoted in Skehan, 1987; Ringbom, 1987). Kellerman explains the transferability hypothesis from L1 in making a L2 collocability prediction, namely, the U-shaped type of transfer behavior. According to Kellerman (1979, pp. 52-55), at an early stage of vocabulary development learners mostly resort to L1 features in selecting possible English collocates. They later contain some developmental target-language features before finally approaching the correct target features. Ringbom (1987, p. 135) states that learners tend to resort to their L1 until they have discovered that it is not the same as L2. Skehan (1989, pp. 76-77) explains that beginning level learners have to apply their L1 patterns to L2 ones because of the lack of perception of the difference between L1 and L2, while advanced learners are likely to have some sense of the limits of translation equivalence, and to realize that it should not be directly used in L2. As these researchers point out, learners have to perceive the distance between L1 and L2 and discover their common ground as well as differences to grasp

the correct L2 features.

This was partially true in the present findings. The decrease of errors influenced by L1 transfer in the 5000 vocabulary level group showed that they had begun to use correct L2 features. However, the 2000 vocabulary level learners made fewer incorrect answers from L1 transfer than the 4000 vocabulary level learners. This can be explained as a result of the blank. It was frequently used by learners in all the vocabulary level groups when they could not produce target collocations or any other acceptable answers. Especially the 2000 vocabulary level learners most often resorted to this, although other vocabulary level learners did so, too. They do not rely on L1, but give up expressing themselves. This tendency is remarked by Blum and Levenson (1978), Ellis (1994) and Biskup (1992). Blum and Levenson (1978, p. 13) and Ellis (1994, p. 693) explain that avoidance often occurs when learners find it difficult to produce L2 structures which are different from those in L1. Biskup (1992, pp. 88-89) concludes from a comparative study of advanced Polish and German students of English that the Polish learners tend to avoid using collocations whose usage they were not convinced of, while German learners try to use alternative ways by paraphrasing and using definitions. He explains that this may result from different teaching policies in Poland and Germany. The Polish teaching of English focuses on accuracy of producing sentences, while the German teaching focuses on the fluency of communication. Based on these two research examples, it can be observed that the reason why learners in any vocabulary level group avoided writing in answers and leave them blank is that they did not know how to describe a sentence in English or they did not want to take risks or make errors because their lack of vocabulary knowledge made them feel

anxious about answering.

Third, verbalized nouns were used by many learners in all the vocabulary level groups, which was beyond the present writer's expectation. These are defined as errors in which nouns are arbitrarily used as verbs. For example, *choice* was used instead of *choose* and the following incorrect sentence was produced: *You have to choice your job*. In the productive collocation test, many key nouns were independently used without the necessary verbs. This feature can be possibly explained by overgeneralization. Overgeneralization is one of the common errors to extend some general grammatical rule to items not covered by this rule in the L2 (Ellis, 1994). In this case, as there are many English words which are used as both verbs and nouns (e.g. *work*, *answer*), the common rule might be adapted to items not covered by this rule. Elyildirm (1997) explains these errors might be attributed to incomplete knowledge of solid English proficiency and Fayez-Hussein (1990) considers these errors resulting from a reduction strategy which means an attempt to ignore the need to acquire new rules and using the previously learned ones.

Fourth, as for structural errors and adjective errors, it was seen that 4000 and 5000 vocabulary level learners tended to make such errors. This is not a surprising finding, because structural errors were made by learners who had knowledge of verb-noun collocations, but who remembered them vaguely and had a slight lack of collocability, while adjective errors were made by learners who had acquired correct collocations, but who lacked knowledge of the correct adjectives to be inserted between verbs and nouns. In short, structural errors can be interpreted as collocation errors in interlanguage which is in the process of the acquisition of correct

collocations but adjective errors as collocation errors after the acquisition of correct collocations. Therefore, these types of errors are different from others.

8.3.3. Discussion of ease or difficulty of collocation acquisition in reception and production in the different vocabulary groups

In research question 3, it was observed that semantic opacity, L1 equivalence, delexicalized verbs, core meanings of verbs and nouns and collocational structure were influential factors for learners' productive knowledge of collocations, and L1 equivalence, delexicalzed verbs and core meanings of verbs for their receptive knowledge of collocations. Based on these observations, we identify the most difficult collocation groups and the easiest collocation groups to be acquired in reception and production.

Reception

Table 68. Levels of collocational difficulty in reception

Most difficult collocations to be acquired

1. **Collocations affected by three influential factors (ID number) N=26**
   take place (1) / take time (5) / make decision (6) / take part (9) / make way (13) / take action (15) / make sense (16) / take step (18) / take care (19) / make point (21) / take advantage (23) / make mistake (27) / make effort (29) / make progress (34) / make money (35) / take view (36) / take look (43) / make choice (46) / make claim (50) / take risk (55) / make friend (57) / take place (62) / take part (64) / make way (66) / take step (67) / take care (68)

2. **Collocations affected by two influential factors (ID number) N=11**
   have effect (3) / find way (17) / make difference (22) / have trouble (30) / raise question (41) / raise money (45) / send letter (54) / give lesson (60) / take lesson (61) / take time (63) / play role (65)

3. **Collocations affected by one influential factor (ID number) N=10**
   do thing (2) / do work (4) / do job (7) / play role (12) / get job (26) / give information (37) / give opportunity (39) / hold meeting (44) / give reason (48) / give answer (58)

4. **Collocations affected by no influential factors (ID number) N=21**
   ask question (8) / shake head (10) / open door (11) / say thing (14) / answer question (20) / tell story (24) / solve problem (25) / play game (28) / hold hand (31) / pay attention (32) / close eye (33) / close door (38) / write book (40) / pay tax (42) / tell truth (47) / shake hand (49) / show sign (51) / open eye (52) / send letter (54) / lose job (56) / eat food (59)

Least difficult collocations to be acquired

Production

Table 69. Levels of collocational difficulty in production

Most difficult collocations to be acquired

1. **Collocations affected by six influential factors (ID number) N=3**
   take part (9) / take step (18) / make point (21)

2. **Collocations affected by five influential factors (ID number) N=14**
   take place (1) / make way (13) / make sense (16) / take care (19) / take advantage (23) / take view (36) / take look (43) / make claim (50) / make friend (57) / take place (62) / take part (64) / make way (66) / take step (67) / take care (68)

3. **Collocations affected by four influential factors (ID number) N=11**
   take time (5) / make decision (6) / take action (15) / find way (17) / make mistake (27) / make effort (29) / make progress (34) / make money (35) / raise question (41) / make choice (46) / take risk (55)

4. **Collocations affected by three influential factors (ID number) N=7**
   have effect (3) / make difference (22) / have trouble (30) / raise money (45) / take lesson (61) / take time (63) / play role (65)

5. **Collocations affected by two influential factors (ID number) N=5**
   do thing (2) / play role (12) / hold meeting (44) / give example (53) / give lesson (60)

6. **Collocations affected by one influential factor (ID number) N=10**
   do work (4) / do job (7) / get job (26) / pay attention (32) / give information (37) / give opportunity (39) / give reason (48) / shake hand (49) / show sign (51) / give answer (58)

7. **Easiest collocations affected by no influential factors (ID number) N=18**
   ask question (8) / shake head (10) / open door (11) / say thing (14) / answer question (20) / tell story (24) / solve problem (25) / play game (28) / hold hand (31) / close eye (33) / close door (38) / write book (40) / pay tax (42) / tell truth (47) / open eye (52) / send letter (54) / lose job (56) / eat food (59)

Least difficult collocations to be acquired

The order from high to low frequency of correct answers in the productive and receptive collocations test was examined to confirm whether influential factors would affect the development of learners' collocational knowledge in production and reception, compared with levels of collocational difficulty shown in Tables 68 and 69.

All groups

Before looking at the high and low frequency of correct answers in production and reception in the different vocabulary level groups, the data

in all the vocabulary level groups was examined to summarize the general tendency of the high and low frequency of the correct answers. Tables 70 and 71 indicate that collocations which had a high frequency of correct answers in production and reception tended not to be affected by the above mentioned influential factors while those which had a low frequency were affected by many influential factors. However, there were some exceptions. In production among the high frequency of correct answers as is in Table 70, only one collocation *make money* was affected by four influential factors. Among the low frequency of correct answers, *have effect*, ranked 10th, was affected by three influential factors. *Show sign*, ranked 10th, was affected by one influential factor. In reception among the high frequency of correct answers as is seen in Table 71, *take care*, ranked 8th, *take risk*, ranked 10th, were both affected by three influential factors, while among the low frequency of correct answers, *do job*, ranked 2nd, and *give lesson*, ranked 8th, were both affected by one influential factor.

One possible explanation for these exceptions is the subjects' familiarity with the collocation constituents or the collocations themselves. *Take care* and *make money* are often used in English textbooks for secondary school students, as Table 35 in Chapter 6 indicated. In contrast, *raise*, *effect*, and *sign* might be unfamiliar to most of them, and *do job* may be also unfamiliar even if they know the following fixed phase, *good job!*. The other explanation for the exception might be inadequate choices in the receptive collocation test.

Table 70. Order of high frequency and low frequency correct answers in the productive collocation test – all groups (N=130)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	127	1	36	**take view**	5	0
2	38	**close door**	0	124	1	50	**make claim**	5	0
3	52	**open eye**	0	122	1	36	**take part**	5	0
4	28	**play game**	0	111	4	13	**make way**	5	1
5	33	**close eye**	0	110	4	21	**make point**	6	1
6	40	**write book**	0	109	4	41	**raise question**	4	1
7	59	**eat food**	0	91	7	18	**take step**	6	2
8	56	**lose job**	0	86	8	66	**make way**	5	3
9	35	**make money**	4	85	9	62	**take place**	5	6
10	37	**give information**	1	84	10	37	**have effect**	3	7
					10	51	**show sign**	1	7

F = Number of factors affecting difficulty of collocations

Table 71. Order of high frequency and low frequency correct answers in the receptive collocation test – all groups (N=130)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	129	1	13	**make way**	3	33
1	33	**close eye**	0	129	2	7	**do job**	1	36
3	38	**close door**	0	127	3	41	**raise question**	2	39
4	52	**open eye**	0	125	4	66	**make way**	3	42
5	28	**play game**	0	117	5	64	**take part**	3	45
6	24	**tell story**	0	116	6	3	**have effect**	2	47
7	59	**eat food**	0	113	6	17	**find way**	2	47
8	19	**take care**	3	109	8	60	**give lesson**	1	50
9	20	**answer question**	0	108	9	45	**raise money**	2	53
10	55	**take risk**	3	104	9	50	**make claim**	3	53

F = Number of factors affecting difficulty of collocations

The 2000 vocabulary level group

In the 2000 vocabulary level group, two outstanding tendencies were found in Tables 72 and 73. One was that among high frequency correct answers, collocations which were affected by one or zero influential factors, were answered correctly in production. Only two exceptions *take care* and *take risk* in reception could be related to the students' familiarity with the collocations as seen in the results of all the groups.

Table 72. Order of high frequency and low frequency correct answers in the productive collocation test – 2000 level (N=31)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	30	1	5	**take time**	4	0
1	38	**close door**	0	30	1	6	**make decision**	4	0
3	28	**play game**	0	27	1	7	**do job**	1	0
4	52	**open eye**	0	26	1	9	**take part**	6	0
5	33	**close eye**	0	23	1	12	**play role**	2	0
6	40	**write book**	0	18	1	13	**make way**	5	0
7	59	**eat food**	0	15	1	15	**take action**	4	0
8	56	**lose job**	0	13	1	18	**take step**	6	0
9	54	**send letter**	0	11	1	21	**make point**	6	0
10	37	**give information**	1	10	1	22	**make difference**	3	0
					1	23	**take advantage**	5	0
					1	24	**tell story**	0	0
					1	26	**get job**	1	0
					1	34	**make progress**	4	0
					1	36	**take view**	5	0
					1	41	**raise question**	4	0
					1	46	**make choice**	4	0
					1	51	**show sign**	1	0
					1	55	**take risk**	4	0
					1	57	**make friend**	5	0
					1	60	**give lesson**	1	0
					1	64	**take part**	5	0
					1	65	**play role**	5	0
					1	66	**make way**	5	0
					1	67	**take step**	5	0

F = Number of factors affecting difficulty of collocations

The other was that among the low frequency correct answers, various collocations affected by both many and few influential factors were listed in both production and reception. This is because even easier collocations to acquire were difficult to produce properly for the 2000 vocabulary level learners owing to their lack of vocabulary knowledge, as Nesselhauf (2003) mentions.

Table 73. Order of high frequency and low frequency correct answers in the receptive collocation test – 2000 level (N=31)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	31	1	7	**do job**	1	1
2	33	**close eye**	0	30	2	13	**make way**	3	3
2	38	**close door**	0	30	3	22	**make difference**	2	5
4	28	**play game**	0	28	3	25	**solve problem**	0	5
4	52	**open eye**	0	28	5	39	**give opportunity**	1	6
6	20	**answer question**	0	27	5	47	**tell truth**	0	6
7	8	**ask question**	0	26	5	61	**take lesson**	2	6
8	19	**take care**	3	24	5	64	**take part**	3	6
8	24	**tell story**	0	24	5	65	**play role**	2	6
10	55	**take risk**	3	23	10	23	**take advantage**	3	7
					10	63	**take time**	2	7

F = Number of factors affecting difficulty of collocations

The 3000 vocabulary level group

In the 3000 vocabulary level group, almost the same tendencies as the 2000 vocabulary level group could be seen in Tables 74 and 75. In the high frequency of correct answers, almost all the collocations listed were affected by few influential factors. The only one exception was *make money* which was affected by four influential factors but it is often used in English secondary school textbooks, as seen in Table 35 in Chapter 6. Among the low frequency of correct answers, even collocations affected by one or zero influential factors were listed in both reception and production, however the number was less than that in the 2000 vocabulary level group. This is attributed to the lack of learners' vocabulary knowledge or possibly the distracters in the receptive collocation test puzzled them.

Table 74. Order of high frequency and low frequency correct answers in the productive collocation test – 3000 level (N=26)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	52	**open eye**	0	25	1	6	**make decision**	4	0
2	11	**open door**	0	24	1	7	**do job**	1	0
3	28	**play game**	0	22	1	13	**make way**	5	0
4	38	**close door**	0	21	1	15	**take action**	4	0
5	40	**write book**	0	20	1	18	**take step**	6	0
6	33	**close eye**	0	19	1	22	**make difference**	3	0
7	56	**lose job**	0	18	1	34	**make progress**	4	0
8	59	**eat food**	0	16	1	36	**take view**	5	0
9	35	**make money**	4	14	1	46	**make choice**	4	0
10	20	**answer information**	0	13	1	50	**make claim**	5	0
10	53	**give example**	2	13	1	62	**take place**	5	0
10	34	**send letter**	0	13	1	64	**take part**	5	0
					1	66	**make way**	5	0

F = Number of factors affecting difficulty of collocations

Table 75. Order of high frequency and low frequency correct answers in the receptive collocation test – 3000 level (N=26)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	26	1	7	**do job**	1	3
1	33	**close eye**	0	26	1	66	**make way**	3	3
3	38	**close door**	0	25	3	13	**make way**	3	4
4	28	**play game**	0	24	4	39	**give opportunity**	1	5
4	52	**open eye**	0	24	5	60	**give lesson**	2	6
6	40	**write book**	0	23	5	64	**take part**	3	6
6	59	**eat food**	0	23	7	6	**make decision**	3	7
8	8	**ask question**	0	22	8	22	**make difference**	2	8
8	20	**answer question**	0	22	8	32	**pay attention**	0	8
8	24	**tell story**	0	22	8	41	**raise question**	2	8

F = Number of factors affecting difficulty of collocations

The 4000 vocabulary level group

In the 4000 vocabulary level group, two tendencies different from the 2000 and 3000 vocabulary level groups were seen in Tables 76 and 77. One was that among the high frequency correct answers for reception, collocations which were affected by more influential factors were listed: *take risk*, *take part* (ID=9), *take care* (ID=19), *take care* (ID=68). The other was that among the low frequency correct answers for both reception and production, easier collocations to be acquired were less listed: *show sign* in

production and *do job* and *shake head* in reception. Judging from these tendencies, the more influential factors collocations were affected by, the more difficult they would be acquired.

Table 76. Order of high frequency and low frequency correct answers in the productive collocation test – 4000 level (N=41)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	41	1	13	**make way**	5	0
1	38	**close door**	0	41	1	21	**make point**	6	0
3	40	**write book**	0	40	1	36	**take view**	5	0
4	33	**close eye**	0	39	1	41	**raise question**	4	0
4	52	**open eye**	0	39	1	50	**make claim**	5	0
6	42	**pay tax**	0	34	1	64	**take part**	5	0
6	54	**send letter**	0	34	1	66	**make way**	5	0
8	28	**play game**	0	33	8	18	**take step**	6	1
8	37	**give information**	1	33	8	51	**show sign**	1	1
8	47	**tell truth**	0	33	8	62	**take place**	5	1

F = Number of factors affecting difficulty of collocations

Table 77. Order of high frequency and low frequency correct answers in the receptive collocation test – 4000 level (N=41)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	32	**close eye**	0	41	1	66	**make way**	3	7
1	52	**open eye**	0	41	2	41	**raise question**	2	9
3	11	**open door**	0	40	3	36	**take view**	3	12
3	38	**close door**	0	40	3	3	**have effect**	2	12
5	24	**tell story**	0	39	5	64	**take part**	3	13
6	19	**take care**	3	38	6	6	**make decision**	3	14
6	59	**eat food**	0	38	6	7	**do job**	1	14
8	9	**take part**	3	37	6	10	**shake head**	0	14
9	28	**play game**	0	36	6	13	**make way**	3	14
9	55	**take risk**	3	36	6	17	**find way**	2	14
9	68	**take care**	3	36	6	45	**raise money**	2	14
					6	50	**make claim**	3	14

F = Number of factors affecting difficulty of collocations

The 5000 vocabulary level group

In the 5000 vocabulary level group, the same two tendencies mentioned in the 4000 vocabulary level group were seen in Tables 78 and 79. One more

tendency could be found in this group: in production, collocations which were in the medium degree of difficulty clearly appeared as not only high frequency correct answers (e.g. *make money*) but also as low frequency correct answers (e.g. *raise question*, *have effect* and *find way*). This shows the process of the acquisition of collocations. In other words, among high frequency correct answers, easier collocations which were affected by fewer influential factors were more common and among low frequency correct answers, more difficult collocations affected by more influential factors were ranked common. Collocations with a medium degree of difficulty were seen in both categories. However, in the 5000 vocabulary level group not only easier collocations, but also collocations with a medium degree of difficulty were ranked among high frequency correct answers. And not only more difficult collocations but also collocations with a medium degree of difficulty were ranked among the low frequency correct answers. This means that learners in this group acquire wider range of collocations than in other groups.

Table 78. Order of high frequency and low frequency correct answers in the productive collocation test – 5000 level (N=32)

high frequency correct answers					**low frequency correct answers**				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	11	**open door**	0	32	1	21	**make point**	6	0
1	38	**close door**	0	32	1	36	**take view**	5	0
1	52	**open eye**	0	32	1	41	**raise question**	4	0
4	40	**write book**	0	31	1	50	**make claim**	5	0
5	35	**make money**	4	30	1	64	**take part**	5	0
5	37	**give information**	0	30	6	13	**make way**	5	1
7	28	**play game**	0	29	6	18	**take step**	6	1
7	33	**close eye**	0	29	8	3	**have effect**	3	2
7	47	**tell truth**	0	29	8	17	**find way**	4	2
7	59	**eat food**	0	29	10	66	**make way**	5	3

F = Number of factors affecting difficulty of collocations

Table 79. Order of high frequency and low frequency correct answers in the receptive collocation test – 5000 level (N=32)

high frequency correct answers					low frequency correct answers				
rank	**id**	**collocation**	**F**	**N**	**rank**	**id**	**collocation**	**F**	**N**
1	1	**take place**	3	32	1	3	**have effect**	2	6
1	11	**open door**	0	32	1	17	**find way**	2	6
1	33	**close eye**	0	32	3	13	**make way**	3	11
1	38	**close door**	0	32	4	41	**raise question**	2	12
1	52	**open eye**	0	32	4	60	**give lesson**	2	12
1	68	**take care**	3	32	6	45	**raise money**	2	13
7	9	**take part**	3	31	7	50	**make claim**	3	16
7	24	**tell story**	0	31	8	7	**do job**	1	17
7	49	**shake hand**	0	31	8	14	**say thing**	0	17
7	59	**eat food**	0	31	8	15	**take action**	3	17
					8	61	**take lesson**	2	17

F = Number of factors affecting difficulty of collocations

After examining all the groups independently, among the collocations which were not answered correctly, not only were more difficult collocations found but also easier collocations could be seen in the 2000 and 3000 vocabulary level groups, but in the 4000 and 5000 vocabulary level groups only more difficult collocations appeared. Among the collocations which were answered correctly, only collocations which were little affected by influential factors could be seen in the 2000 and 3000 vocabulary level groups. However, in the 4000 and 5000 vocabulary level groups, collocations which were affected by more influential factors could be seen and in 5000 vocabulary level groups, collocations with a medium degree of difficulty also appeared. These tendencies in the 4000 and 5000 vocabulary level groups are related to varying degrees of learners' vocabulary knowledge. Also it was revealed that there was another factor, familiarity with the constituents of the collocations or the collocations themselves, but this remained to be established.

8.3.4. Summary of the collocation acquisition in the different vocabulary level groups

The results and discussion in the previous sections are herein summarized as follows:

1. There was a close correlation between learners' general vocabulary knowledge and their collocational knowledge. In other words, the more vocabulary knowledge learners had, the more collocational knowledge they tended to acquire.

2. Receptive knowledge of collocations appeared to be deeper than productive knowledge of collocations. Therefore, learners' productive knowledge of collocations would be broadened as they learned more receptive collocations.

3. Factors which influence the development of productive collocational knowledge were the vocabulary knowledge, semantic opacity, delexicalized verbs, core meanings of nouns and verbs, collocational structure and L1 equivalence. The vocabulary knowledge, L1 equivalence, delexicalized verbs and core meanings of verbs affected the development of their receptive knowledge of collocations. The following figure schematically summarizes the factors influencing the development of collocational knowledge.

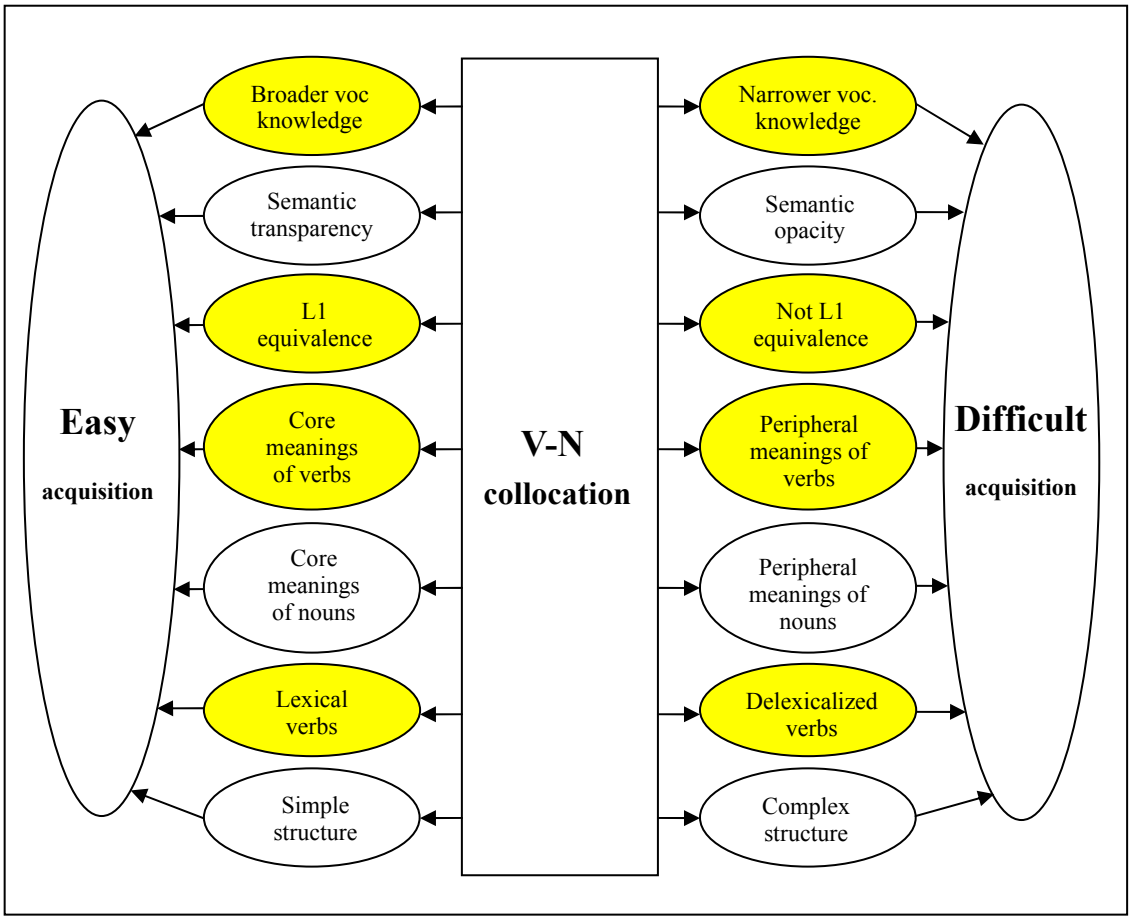


Figure 6. Factors influencing the development of collocational knowledge[2]

4. Neither easier nor more difficult collocations the 2000 vocabulary level learners could correctly answer. As learners' vocabulary was broader, they could answer easier collocations more correctly and more difficult collocations remained to be acquired.

5. When learners could not produce the target collocations, they would have little chance to succeed in communication because alternative collocations were rarely used by even over the 3000 vocabulary level learners and

[2] Influential factors for learners' receptive knowledge of collocation are colored gray.

paraphrasing or describing expressions in alternative ways was also difficult for almost all learners.

6. Learners between the 2000 vocabulary level groups and 4000 vocabulary level groups gave incorrect answers with the common techniques, leaving an answer blank, when they did not know the appropriate expressions. Learners whose general vocabulary knowledge was lower tended to resort to it. The second most often used way was by verbalizing nouns, which learners in all the groups resorted to. The structural errors were the third most frequently used technique but more errors of this kind were made by learners whose vocabulary level was higher.

7. The 5000 vocabulary level learners used different techniques from other vocabulary level learners. Leaving an answer blank was the second most often used technique, followed by general errors. This means they attempted to produce some words to express themselves, although they were not regarded as correct answers. Their structural errors were closer to correct collocations than other level groups' but adjective errors still occurred after correct collocations were acquired.

8.3.5. Pedagogical implications

Findings in the present research indicate some effective pedagogical implications as follows:

1. Solidify learners' basic vocabulary

It was found in this data analysis that the lack of basic vocabulary badly

affected learners' development of collocational knowledge. Basic vocabulary is fundamental to the basic English skills of speaking, listening, reading and writing, and it is also significant in the acquisition of basic collocations, because they mainly consist of 1000 or 2000 level words, as the data analysis I showed. Basic vocabulary will also lead to fluent communicative ability (Pawley and Syder, 1983, p. 192). The positive correlation between the general vocabulary knowledge and collocational knowledge was also indicated by this research. Therefore, the learners' fixed basic vocabulary has to be broadened especially for 2000 and 3000 level learners who obviously lack collocational knowledge.

2. Present new vocabulary with some of its most frequent collocations.

When teaching basic vocabulary, a teacher should couple it with words that frequently co-occur and help learners build a database of collocations. For example, *decision* should be introduced with *make*.

In this case, two points should be taken into consideration. One is that learners should be aware of collocations at all stages of English acquisition, as many researchers have pointed out (see section 8.3.1.1.) The other is that collocations should be presented in context. Thus, learners' conscious leaning of collocations in context and teachers' simultaneous instruction of new vocabulary and frequently co-occurring words will accelerate the acquisition of more collocations along with the expansion of general vocabulary. This instruction is needed for all the vocabulary level learners, especially 2000 and 3000 level learners who obviously lack their collocational knowledge.

3. Present collocations in different ways according to their different features

Basically, collocations should be explicitly taught by directing learners' attention to them. And as broader productive knowledge of collocations generally follow the development of learners' receptive knowledge of collocations, receptive knowledge of collocations has to be first focused on through reading or listening activities. However, it is possible that different collocations have different processes of acquisition. Some may follow the regular process from reception to production, but some may be acquired receptively and productively at the same time. Moreover, some collocations can be perceived, but they cannot be produced (e.g. *take risk*), so that the productive aspect should be explicitly focused on. Therefore, different collocations should be taught differently in accordance with their different processes of acquisition. In order to do this, teachers have to be familiar with the features of basic collocations and the process of the development of learners' collocational knowledge. This should be considered in instruction for all vocabulary level learners.

4. Teach collocations by focusing on the shortcomings of different level vocabulary learners

Different vocabulary level learners have different shortcomings in the acquisition of collocations as follows:

The 2000 vocabulary level learners

As the 2000 vocabulary level learners have an obvious lack of collocational knowledge, teachers should explicitly present basic

collocations to have them recognize and remember them. Positive transfer from L1 should effectively be used to facilitate the acquisition of collocations, avoiding negative transfer from L1. This will lessen the acquisition burden. Necessary information about collocations such as L1 transfer should be written in students' notebooks to build up their own database and keep them in their memory, as researchers of Lexical approach maintain.

The 3000 vocabulary level learners

As the 3000 vocabulary level learners still have a relatively small collocational knowledge, it should be strengthened and solidified more by several repetitions of basic collocations. In order to keep learned collocations in their long term memory, they should be reviewed at least three times within a month, according to Iketani (2002). These students are still poor at perceiving and producing difficult collocations which are affected by many negative factors and those affected by one or zero negative factors. Therefore, explicit learning of collocations is needed.

The 4000 vocabulary level learners

The 4000 level learners have more collocational knowledge than 2000 and 3000 level learners, but they are still influenced by L1 transfer. It is important to have learners discover more commonality and differences between L1 and L2 to grasp the correct L2 features by acquiring a broader basic vocabulary.

The 5000 vocabulary level learners

The 5000 level learners have much collocational knowledge, but they still have to focus on collocation learning in order to use them properly, especially collocations including articles and prepositions. The lack of necessary articles and prepositions will distort the meaning of the

sentences.

As stated above, instruction should be focused on learners' different collocational development.

5. Verbs should be explicitly focused on when teaching collocations

It was found in this research that the meanings of verbs affected learners' receptive and productive knowledge of collocations. Especially, collocations whose constituents were delexical verbs with opaque and peripheral meanings should be explicitly taught to raise learners' awareness of them and keep them firmly in their minds. Oikawa (1993) maintains that this instruction should start from the learners' beginning stage of collocational acquisition.

Chapter 9. Conclusion

9.1. Overview

This research intended to identify basic collocations for Japanese learners of English, investigate their collocation acquisition process, and propose their effective instruction. It is important to conduct this investigation because there has been little empirical research on collocations in Japan. The definition and features of collocations have not been sufficiently identified, no consensus on basic collocations for Japanese learners of English has been reached, and no evidence which supports the mechanism of development of their collocational knowledge has been established. In order to explicate these problems and help learners develop a better command of English with collocations, both theoretical and practical studies needed to be conducted.

Chapter 2 reviewed the literature on collocation studies in terms of the distinction of collocations, idioms and free combinations, as well as in terms of five study domains and the importance of collocations. First, it was found that many researchers had reached a consensus that semantic opacity and collocational restriction were the two criteria to distinguish phraseological combinations. However, as these criteria were a matter of degree along a continuum, it had been difficult to clearly divide the above three phraseological combinations.

Second, previous literature on collocations was examined from five domains: descriptive studies, semantic studies, computational studies, lexicographic studies, and pedagogical studies. Researchers presented their own perspectives on collocations in the different domains and on criteria to

define collocation clearly. They were mainly divided into two groups: objective criteria and subjective criteria. Objective criteria were related to statistics such as z-score and t-score, frequency of co-occurrence, collocational range and adjacency (span), while subjective criteria were concerned with features of collocations such as collocational restriction and semantic opacity which could not be calculated because they were degrees along a continuum. Both criteria have been regarded as important to explain collocations by many researchers, but we consider that objective criteria are landmark for EFL teachers and learners who have had to depend on native speakers' intuition to judge acceptability of collocations. It is because they can easily obtain new objective facts about English collocations, i.e. how collocations are actually used via computers without relying on native speakers' intuition.

Third, it was found that many researchers had pointed out importance of collocations in terms of memorization, fluent and appropriate language use, aspects of knowing words, word models and teaching effectiveness.

In Chapter 3, previous empirical research on the acquisition of collocations was summarized. This research had been conducted mainly from two perspectives: from L2 influence and from various influential factors such as lack of vocabulary knowledge and overgeneralization including L2 influence. Although this research had intensively been carried out for the last two decades the world over, research on collocations in Japan was extremely limited. Only recently, however, the importance of collocations was recognized and collocation research began to be spotlighted mainly in the lexicographic domain and corpus studies. Yet empirical research on the collocation acquisition by Japanese learners of English has not started.

In order to conduct research on collocation acquisition by Japanese learners of English, two purposes were set up in this thesis: the identification of basic collocations for Japanese learners of English and the investigation of the development of their collocational knowledge. Before the research was conducted, some pilot studies were carried out (in Chapter 4).

In Chapters 5 and 6, in order to identify basic collocations for Japanese learners of English, high frequency collocations used by native speakers of English were examined, and compared with high frequency collocations in English textbooks for secondary school students in Japan. Only verb-noun collocations were targeted in this research because they played the most important role in communication. The nouns were all based on *JACET 8000*, intended for Japanese learners of English to identify the basic collocations. Actually, one's collocational competence is best reflected in its native speaker's ability in establishing or confirming rules of the grammar and the usage of language (Crystal, 1992). Their use of collocations should never be ignored in identifying basic collocations for Japanese learners of English because we have no alternative ways other than relying on it at present. However, native speaker's intuitive collocations are not necessarily equal to what is expected as the basic collocations for Japanese learners of English and they have to be examined in terms of the importance of collocations for Japanese learners of English. Therefore, nouns which were the node in verb-noun collocations were all selected from *JACET 8000* which presented words needed for Japanese learners of English.

In this research, BNC, TIME and English I textbook corpora were used. The findings showed that high-frequency collocations in the BNC and the TIME corpora were fairly common and they partially overlapped with those

in the English I textbook corpus. They consisted of basic verbs and nouns in reference to *JACET 8000* and they tended to be used regardless of the topics. Basic collocations in this research were determined to consist of the common high-frequency collocations found among the three corpora and they were regarded as necessary for Japanese learners of English from a pedagogical point of view. The sixty-one collocations were finally selected as basic collocations as a result of this corpus-based research.

In Chapters 7 and 8, empirical research on learners' development of the basic collocations was conducted. The research especially focused on the relationship between their general vocabulary knowledge and their collocational knowledge, and between their productive knowledge of collocations and their receptive knowledge of collocations, as well as influential factors affecting the development of collocational knowledge and the importance of collocational knowledge in communication. Three kinds of tests, a vocabulary size test, a productive collocation test, and a receptive collocation test were administered with the basic collocations identified in Chapters 5 and 6 on 130 university students.

The findings were: (a) there was a high positive correlation between learners' general vocabulary knowledge and their collocational knowledge and between their receptive knowledge of collocations and their productive one; (b) factors which influenced the receptive knowledge of collocations were the vocabulary knowledge, L1 equivalence, delexicalized verbs and core meanings of verbs, while semantic opacity, core meanings of nouns and syntactic collocational structure in addition to these same factors for reception were influential factors in students' productive knowledge of collocations; and (c) learners could not succeed in communication without

collocations and when they were not sure of them, their mistakes such as leaving an answer blank, verbalized nouns, and L1 transfer were commonly found.

To summarize all these chapters, the points of the present writer's research are as follows: (a) a clearer definition of collocations based on a previous literature review was established, (b) basic verb-noun collocations for Japanese learners of English were identified, and (c) how to develop students' knowledge of verb-noun collocations was clarified. All of them will contribute to the effective instruction in collocations in the classroom in Japan and to the effective compilation of English textbooks and collocation exercise books. The research will also provide a clearer definition of collocations for Japanese teachers of English and Japanese learners of English and concrete answers for ambiguous descriptions of "basic collocations" in the government guidelines for foreign language teaching compiled by MEXT.

9.2. Pedagogical implications for effective compilation of English textbooks

On the basis of the findings and the discussion of corpus-based research (Chapters 5 and 6) and empirical research (Chapters 7 and 8), we should suggest to textbook writers the compilation of new English textbooks in the light of effective collocation acquisition.

First, textbook writers have to present basic collocations in the English textbooks because collocations should be acquired to develop learners' better command of English as is mentioned in previous chapters. In order to facilitate learners' collocation acquisition they should take account of the

appropriate order of presentation of basic collocations: (a) in the order of the importance of words to be acquired and (b) in the order of the difficulty of collocations to be acquired. Basic collocations consist of basic-level words such as the first 1000 and 2000 basic words in accordance with *JACET 8000* (2003) as is found in corpus-based research (Chapters 5 and 6). As MEXT designs lower secondary school students to learn 900 basic words, many of them should be included in the lower secondary school English textbooks. For example, *do, get,* and *lose* should be presented with *job* as collocations in English textbooks because they are listed as basic words in the government guidelines for foreign language teaching. As for (b), basic collocations are different in the level of collocational difficulty affected by influential factors, as is shown in Tables 68 and 69. For example, *lose job* is more difficult to acquire than *do job* and *get job* in reception and production and therefore, *lose job* is introduced after the other two *job* collocations. Thus, textbook writers should arrange basic collocations in the lower and upper secondary school textbooks from these (a) and (b) perspectives.

Second, English textbooks for lower and upper secondary school students should be compiled on the basis of the same basic collocations so that students can learn them with any textbook which English teachers select at different schools. Corpus-based research in Chapter 6 showed English I textbooks have no consensus on what kind of collocation and how many should be taught. In short, students who use different textbooks learn different collocations. Textbook writers should have consensus on basic collocations in compiling English textbooks. In order to do it, MEXT should concretely specify basic collocations to be learned in each grade in the government guidelines for foreign language teaching.

Finally, textbooks writers have to show basic collocations repeatedly in context. As previous research proved that words should be repeated six times to be effectively learned, this would be true of effective collocation acquisition (see section 6.3). Moreover, previous research also confirmed that collocations should be learned in context (see section 8.3.1.1). Therefore, basic collocations should appear six times in context in English textbooks. However, it may force many basic collocations to appear in an unnatural context because of the limited pages of English textbooks. In that case, textbook writers should make up collocation exercise books, which repeatedly raise learners' attention on collocations in different ways such as a collocation box, producing example sentences and collocation dominoes.

9.3. Limitations of the study

Three main limitations need to be mentioned with regard to corpus-based and empirical research.

The first one is related to the use of corpora in corpus-based research. The TIME corpus was collected from 17 issues over four months. But, they do not seem sufficient and more samples from *TIME* magazines should have been utilized. Full American National Corpus, consisting of 100 million words, is expected to be in place in the fall of 2005. It should be used and compared with the BNC in terms of collocations in the future research.

The second one is concerned with choices in the receptive collocation test. In fact, several dictionaries were referred to make the choices. However, the results of the test were so complicated that not all of these could be sufficiently explained. That is because some distracters were intentionally selected to confuse the subjects. The choices should have been selected more

carefully.

The third one is involved with influential factors in empirical research. It was found that some influential factors affected learner development of collocational knowledge for both reception and production. However, it could not be determined which factor was the most or least influential factor. Moreover, familiarity with the collocations might be an influential factor, which was not established by this research.

The final limitation is concerned with the notion of English as an International Language (EIL, see the following section). The present writer attempted to adapt the notion of EIL to this research and conducted an investigation. The attempt was to judge whether unclear answers produced by subjects were acceptable or not, questionnaires (see Appendix L) were distributed to native speakers of English, advanced English proficiency EFL students and Japanese returnees who were almost equal to native speakers of English in English proficiency (see footnote 5 in Chapter 7). In the questionnaires seventy sentences containing different verbs of some collocations, and articles and prepositions closely related to these collocations were asked to evaluate. The results were so varied in the three groups that they could not be examined and categorized properly. Therefore, for this research only the judgment by the native speakers of English was used, because scores displaying EFL learner and Japanese returnee English proficiency was not available and so they could not be treated under the concept of EIL.

Table 80. Judgment of 70 acceptable collocations by the three groups (Phase II. Empirical research)

Judgment	NS (N =17)	EFLS (N = 9)	JR (N = 14)
Acceptable	13.2 %	36.9 %	30.1 %
Intelligible but not acceptable	42.6 %	27.7 %	42.5 %
Not intelligible	44.1 %	35.4 %	27.4 %

NS = native speakers of English EFLS = English as foreign language speakers
JR = Japanese returnees

The data were not used in terms of EIL in this research, but it shows the tendency of acceptable collocations among the groups. Table 80 above is the percentage of judgment of unclear collocations by the three groups. As Table 80 indicates, native speakers of English accepted only 13.2 % of the seventy collocations, whereas the collocations which were intelligible but not acceptable were 42.6%. Native-speakers make critical judgments about acceptable collocations. On the contrary, high proficiency EFL learners accepted 36.9% of the seventy collocations. This percentage was higher than other respondents as they seem to have a more favorable judgment of acceptable collocations. Japanese returnees accepted 30.1 % of the seventy collocations, while the collocations which are intelligible but not acceptable were 42.5%. Although Japanese returnees had many unacceptable collocations, they allowed more acceptable collocations than did the native speakers of English. Thus, EFL learners and Japanese returnees have a wider acceptance of collocations than do native speakers of English.

9.4. Future research

The present research on collocations to be learned by Japanese learners of English consists of two data analyses, corpus-based one on the identification of basic collocations and empirical one on the development of their collocational knowledge based on the previous theoretical and practical research of the past 50 years. However, the domain of collocation research has been neglected in Japan in spite of the importance of collocations. This present research clarified an aspect of collocation acquisition by Japanese learners of English but many questions still remained to be solved. Further research should be done in the following fields:

First, research should be conducted on various lexical and grammatical collocations to examine the mechanism of learners' development of whole collocations. This research only focused on verb-noun collocations which play an important role in sentences. However, learners often make errors of not only verb-noun collocations but also other kinds of collocations such as adjective-noun collocations and verb-adverb collocations. Empirical research on other kinds of collocations has to be conducted to gain a comprehensive perspective on collocation acquisition.

Second, future corpus-based research will be needed in order to examine acceptable collocations for both native speakers of English and non-native speakers of English based on the concept of EIL. Collocation research has regarded native English speaker's collocations as the best model to intimate. This is because it is widely accepted that native speakers establish and confirm the rules of the grammar and the usage of language (Crystal, 1992) and therefore their collocations should be used as a model. However, the notion of EIL has spread among us since Smith proposed it in his 1976 seminal paper (cited in Yano, 2004a). EIL is "a loose league of regional standard Englishes with high mutual intelligibility and spoken and understood by the educated speakers of any varieties" (Yano, 2004a, p. 133). In short, EIL is a universally international norm which is intelligible and acceptable among all the English speakers and English language teachers are expected to take it into consideration in their teaching. This EIL concept is supported by the fact that the population of non-native speakers who communicate in English is rapidly growing and non-native speakers have had more opportunities to communicate with each other for specific purposes such as business negotiation (Crystal, 2003). Yano argues that we need to

change our model to teach from native speakers' English model to that of EIL with the view to the present situation of English use in the world that 80 percent of communication in English takes place among non-native speakers. Yano strongly suggests that we change the native speaker-oriented view of Japanese learners of English that only native-speaker English is natural and authentic to more accommodating one.

This concept of EIL is reasonable, but the most critical shortcoming is that it is not supported by data analysis, as is admitted by Yano (2004b). None of proponents have shown concrete examples of EIL which share grammar and basic vocabulary with all English varieties. Therefore, EIL cannot be adopted as a good model to be learned for us and native-speaker collocation model is the best to be used for the collocation analysis at this moment.

In order to identify collocations acceptable for both native speakers and non-native speakers of English based on the concept of EIL and choose from them those collocations appropriate as the EIL model to Japanese learners of English, we need corpus samples collected from various speakers of English —both native and non-native—around the world. For example, ICLE is available to do such research. It is a database collected from samples of 19 English-speaking and ESL countries and each corpus consists of one million spoken and written words. As the project is expanding steadily, English corpora from more various countries will be available in the near future. Collocation analysis based on the concept of EIL is to be done as our project.

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Appendix A. 1572 collocations

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 8	atrocity	commit	Level 7	comeback	make
Level 8	backdrop	provide	Level 7	comeback	stage
Level 8	blockade	impose	Level 7	compassion	show
Level 8	blockade	lift	Level 7	crusade	launch
Level 8	condemnation	issue	Level 7	dam	build
Level 8	credential	establish	Level 7	discomfort	cause
Level 8	credential	present	Level 7	discomfort	experience
Level 8	envoy	send	Level 7	disgrace	bring
Level 8	forgiveness	beg	Level 7	dissatisfaction	express
Level 8	havoc	play	Level 7	endorsement	give
Level 8	havoc	wreak	Level 7	endorsement	receive
Level 8	impatience	show	Level 7	feat	accomplish
Level 8	lottery	win	Level 7	feat	perform
Level 8	motorcycle	ride	Level 7	hockey	play
Level 8	reunion	hold	Level 7	honeymoon	spend
Level 8	rift	cause	Level 7	imbalance	correct
Level 8	rift	heal	Level 7	imbalance	redress
Level 8	slavery	abolish	Level 7	inventory	take
Level 8	truce	call	Level 7	irritation	express
Level 8	truce	declare	Level 7	lawsuit	bring
Level 8	wig	wear	Level 7	lawsuit	file
Level 7	anguish	cause	Level 7	lawsuit	settle
Level 7	applause	draw	Level 7	medication	take
Level 7	applause	win	Level 7	medication	give
Level 7	awe	inspire	Level 7	meditation	practice
Level 7	boredom	relieve	Level 7	memoir	publish
Level 7	censorship	impose	Level 7	memoir	write
Level 7	chess	play	Level 7	moisture	absorb
Level 7	cigar	light	Level 7	oath	swear
Level 7	cigar	smoke	Level 7	oath	take
Level 7	climax	reach	Level 7	pastry	make
Level 7	comeback	attempt	Level 7	perfume	wear

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 7	pilgrimage	make	Level 6	banner	wave
Level 7	posture	adopt	Level 6	blessing	give
Level 7	prominence	gain	Level 6	brake	apply
Level 7	prominence	give	Level 6	breakthrough	achieve
Level 7	reinforcement	send	Level 6	breakthrough	make
Level 7	salute	give	Level 6	bulletin	issue
Level 7	salute	take	Level 6	cartoon	draw
Level 7	setback	receive	Level 6	ceasefire	sign
Level 7	sorrow	express	Level 6	citizenship	grant
Level 7	sorrow	feel	Level 6	clearance	get
Level 7	spice	add	Level 6	clearance	receive
Level 7	spotlight	turn	Level 6	clearance	give
Level 7	steak	grill	Level 6	confession	make
Level 7	terrorism	combat	Level 6	cue	take
Level 7	terrorism	fight	Level 6	debris	clear
Level 7	trauma	suffer	Level 6	denial	issue
Level 7	vaccine	give	Level 6	destiny	shape
Level 7	veil	draw	Level 6	dismay	express
Level 7	veil	lift	Level 6	disruption	cause
Level 7	visa	get	Level 6	freight	carry
Level 7	visa	grant	Level 6	fuss	make
Level 6	acquaintance	make	Level 6	goodwill	show
Level 6	acquaintance	renew	Level 6	gospel	preach
Level 6	allegiance	owe	Level 6	gospel	spread
Level 6	allegiance	pledge	Level 6	gratitude	express
Level 6	allegiance	swear	Level 6	gratitude	show
Level 6	allegiance	switch	Level 6	hardship	suffer
Level 6	amnesty	grant	Level 6	hay	make
Level 6	antibiotic	prescribe	Level 6	homework	do
Level 6	antibiotic	take	Level 6	hospitality	offer
Level 6	bail	grant	Level 6	hostage	take
Level 6	banner	unfurl	Level 6	hurdle	clear

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 6	hurdle	overcome	Level 6	rocket	launch
Level 6	injunction	grant	Level 6	sadness	express
Level 6	injunction	issue	Level 6	sadness	feel
Level 6	innocence	prove	Level 6	sanctuary	offer
Level 6	innocence	protest	Level 6	sanctuary	seek
Level 6	inquest	hold	Level 6	scarf	wear
Level 6	intercourse	have	Level 6	scarf	tie
Level 6	jealousy	feel	Level 6	scarf	wrap
Level 6	marathon	run	Level 6	slogan	chant
Level 6	momentum	gather	Level 6	solidarity	show
Level 6	momentum	lose	Level 6	suitcase	pack
Level 6	morale	boost	Level 6	testimony	give
Level 6	nomination	win	Level 6	tolerance	show
Level 6	nomination	accept	Level 6	toll	take
Level 6	optimism	express	Level 6	vacuum	create
Level 6	passport	issue	Level 6	vacuum	fill
Level 6	perfection	achieve	Level 6	veto	override
Level 6	pistol	fire	Level 6	void	fill
Level 6	pistol	load	Level 6	void	leave
Level 6	postcard	send	Level 6	weed	kill
Level 6	precaution	take	Level 5	accusation	make
Level 6	precedent	establish	Level 5	accusation	deny
Level 6	precedent	set	Level 5	agony	prolong
Level 6	prestige	enjoy	Level 5	analogy	draw
Level 6	prose	write	Level 5	ankle	sprain
Level 6	refuge	give	Level 5	ankle	twist
Level 6	refuge	take	Level 5	apology	make
Level 6	refuge	seek	Level 5	apology	offer
Level 6	resemblance	bear	Level 5	apology	demand
Level 6	revenge	exact	Level 5	apology	accept
Level 6	revenge	take	Level 5	appetite	satisfy
Level 6	rocket	fire	Level 5	appetite	lose

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 5	appreciation	show	Level 5	disgust	express
Level 5	appreciation	express	Level 5	distress	cause
Level 5	armor	pierce	Level 5	distress	suffer
Level 5	assertion	make	Level 5	disturbance	cause
Level 5	asylum	seek	Level 5	documentary	film
Level 5	auction	hold	Level 5	donation	make
Level 5	bankruptcy	declare	Level 5	embarrassment	cause
Level 5	beard	grow	Level 5	encouragement	give
Level 5	bladder	empty	Level 5	enjoyment	provide
Level 5	bonus	pay	Level 5	enjoyment	get
Level 5	bonus	receive	Level 5	exit	make
Level 5	booking	make	Level 5	fame	achieve
Level 5	brow	wrinkle	Level 5	fame	win
Level 5	brow	mop	Level 5	fare	pay
Level 5	cargo	carry	Level 5	feedback	give
Level 5	cart	draw	Level 5	feedback	get
Level 5	caution	exercise	Level 5	ferry	board
Level 5	champagne	drink	Level 5	ferry	take
Level 5	champagne	sip	Level 5	flour	mix
Level 5	complication	cause	Level 5	frontier	cross
Level 5	confrontation	provoke	Level 5	glimpse	catch
Level 5	confrontation	avoid	Level 5	hatred	feel
Level 5	contempt	show	Level 5	headache	get
Level 5	credibility	lose	Level 5	injection	administer
Level 5	credibility	damage	Level 5	injection	give
Level 5	credibility	undermine	Level 5	inspiration	provide
Level 5	curiosity	satisfy	Level 5	inspiration	draw
Level 5	custody	take	Level 5	inspiration	find
Level 5	deadline	set	Level 5	knot	tie
Level 5	deadline	meet	Level 5	lemon	squeeze
Level 5	decree	issue	Level 5	lid	put
Level 5	dilemma	face	Level 5	lorry	drive

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 5	maturity	reach	Level 5	rebellion	crush
Level 5	mercy	show	Level 5	reluctance	show
Level 5	misery	cause	Level 5	resentment	feel
Level 5	nail	hammer	Level 5	restraint	exercise
Level 5	nail	manicure	Level 5	revolt	crush
Level 5	nail	polish	Level 5	rib	break
Level 5	obstacle	overcome	Level 5	rifle	fire
Level 5	obstacle	remove	Level 5	sanction	impose
Level 5	outrage	express	Level 5	scholarship	award
Level 5	outrage	spark	Level 5	scholarship	get
Level 5	parcel	send	Level 5	scholarship	win
Level 5	patent	grant	Level 5	sentiment	echo
Level 5	patience	test	Level 5	sentiment	express
Level 5	patience	lose	Level 5	splash	make
Level 5	pie	make	Level 5	tablet	take
Level 5	pill	prescribe	Level 5	tan	get
Level 5	pill	swallow	Level 5	tariff	impose
Level 5	pill	take	Level 5	temper	control
Level 5	plea	enter	Level 5	temper	keep
Level 5	plea	make	Level 5	temper	lose
Level 5	plea	reject	Level 5	temptation	resist
Level 5	pony	ride	Level 5	throne	ascend
Level 5	popularity	gain	Level 5	torch	carry
Level 5	popularity	enjoy	Level 5	tribute	pay
Level 5	prey	fall	Level 5	trophy	present
Level 5	privacy	invade	Level 5	trophy	win
Level 5	pulse	feel	Level 5	warrant	issue
Level 5	pulse	take	Level 5	willingness	show
Level 5	questionnaire	return	Level 5	willingness	express
Level 5	queue	join	Level 5	workforce	cut
Level 5	queue	jump	Level 5	workforce	reduce
Level 5	quota	set	Level 5	yacht	sail

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 4	acceptance	gain	Level 4	commitment	make
Level 4	adjustment	make	Level 4	complaint	file
Level 4	admission	make	Level 4	complaint	lodge
Level 4	affection	display	Level 4	complaint	make
Level 4	affection	show	Level 4	compromise	reach
Level 4	affection	feel	Level 4	concession	make
Level 4	allegation	make	Level 4	consensus	reach
Level 4	allegation	deny	Level 4	consultation	hold
Level 4	alliance	form	Level 4	controversy	arouse
Level 4	amendment	propose	Level 4	controversy	cause
Level 4	approval	give	Level 4	conviction	overturn
Level 4	approval	get	Level 4	coverage	give
Level 4	approval	win	Level 4	criterion	apply
Level 4	assessment	make	Level 4	criterion	meet
Level 4	backing	win	Level 4	deficit	run
Level 4	bargain	drive	Level 4	definition	give
Level 4	bargain	strike	Level 4	delivery	make
Level 4	bargain	get	Level 4	delivery	take
Level 4	bid	make	Level 4	determination	show
Level 4	boundary	draw	Level 4	diagnosis	make
Level 4	boundary	set	Level 4	diagnosis	confirm
Level 4	boundary	redraw	Level 4	dimension	add
Level 4	breakdown	have	Level 4	directive	issue
Level 4	breakdown	suffer	Level 4	discount	give
Level 4	budget	balance	Level 4	discretion	exercise
Level 4	calculation	make	Level 4	dispute	resolve
Level 4	casualty	suffer	Level 4	dispute	settle
Level 4	certificate	issue	Level 4	distinction	draw
Level 4	chaos	cause	Level 4	distinction	make
Level 4	chaos	create	Level 4	dividend	pay
Level 4	clothes	wear	Level 4	dose	give
Level 4	coalition	form	Level 4	dose	receive

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 4	dose	take	Level 4	insight	give
Level 4	edition	publish	Level 4	insight	provide
Level 4	engagement	announce	Level 4	intention	announce
Level 4	engagement	break	Level 4	intention	declare
Level 4	expectation	meet	Level 4	intention	state
Level 4	expectation	exceed	Level 4	investment	make
Level 4	expense	incur	Level 4	journal	publish
Level 4	expense	cover	Level 4	legislation	pass
Level 4	fabric	weave	Level 4	legislation	introduce
Level 4	fee	charge	Level 4	liability	accept
Level 4	fee	pay	Level 4	living	earn
Level 4	flexibility	show	Level 4	living	make
Level 4	guarantee	give	Level 4	loan	get
Level 4	guarantee	provide	Level 4	loyalty	show
Level 4	guidance	offer	Level 4	loyalty	pledge
Level 4	guidance	provide	Level 4	measurement	take
Level 4	guideline	follow	Level 4	missile	fire
Level 4	halt	call	Level 4	missile	launch
Level 4	hearing	hold	Level 4	motive	question
Level 4	helicopter	fly	Level 4	negotiation	open
Level 4	hypothesis	test	Level 4	objection	make
Level 4	identification	make	Level 4	objection	raise
Level 4	incentive	give	Level 4	obligation	feel
Level 4	incentive	provide	Level 4	obligation	fulfill
Level 4	indication	give	Level 4	obligation	meet
Level 4	infection	spread	Level 4	offence	take
Level 4	infection	prevent	Level 4	offence	cause
Level 4	inflation	control	Level 4	output	increase
Level 4	initiative	take	Level 4	partnership	form
Level 4	inquiry	make	Level 4	payment	receive
Level 4	inquiry	launch	Level 4	payment	make
Level 4	insight	gain	Level 4	penalty	impose

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 4	penalty	pay	Level 4	reception	get
Level 4	petition	file	Level 4	recommendation	make
Level 4	petition	present	Level 4	recording	make
Level 4	petition	sign	Level 4	recovery	make
Level 4	pity	feel	Level 4	reduction	make
Level 4	plot	uncover	Level 4	reference	make
Level 4	poll	take	Level 4	referendum	hold
Level 4	prediction	make	Level 4	rent	pay
Level 4	premium	put	Level 4	requirement	meet
Level 4	premium	pay	Level 4	requirement	satisfy
Level 4	privilege	grant	Level 4	resolution	adopt
Level 4	privilege	enjoy	Level 4	resolution	pass
Level 4	procedure	follow	Level 4	retreat	beat
Level 4	proceeding	bring	Level 4	revenue	raise
Level 4	profile	keep	Level 4	review	receive
Level 4	profile	maintain	Level 4	scope	widen
Level 4	proof	provide	Level 4	screw	tighten
Level 4	proposal	make	Level 4	screw	turn
Level 4	proposal	support	Level 4	seminar	hold
Level 4	proposal	accept	Level 4	seminar	attend
Level 4	proposal	reject	Level 4	sin	commit
Level 4	prosecution	face	Level 4	spending	increase
Level 4	provision	make	Level 4	stance	adopt
Level 4	publicity	give	Level 4	stance	take
Level 4	publicity	get	Level 4	suspicion	arouse
Level 4	publicity	receive	Level 4	suspicion	confirm
Level 4	punishment	escape	Level 4	suspicion	allay
Level 4	punishment	take	Level 4	transformation	undergo
Level 4	rally	hold	Level 4	transition	make
Level 4	receiver	replace	Level 4	tumor	remove
Level 4	reception	give	Level 4	verdict	reach
Level 4	reception	hold	Level 4	verdict	return

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 4	verse	write	Level 3	burden	carry
Level 4	whip	crack	Level 3	burden	share
Level 3	advertisement	place	Level 3	button	press
Level 3	alarm	raise	Level 3	button	push
Level 3	alarm	sound	Level 3	cab	get
Level 3	alarm	set	Level 3	cab	hail
Level 3	alarm	cause	Level 3	cab	take
Level 3	ambition	achieve	Level 3	cab	drive
Level 3	anniversary	celebrate	Level 3	candle	light
Level 3	anniversary	mark	Level 3	cattle	graze
Level 3	announcement	make	Level 3	ceiling	set
Level 3	anxiety	cause	Level 3	celebration	hold
Level 3	apartment	rent	Level 3	chat	have
Level 3	application	make	Level 3	clue	find
Level 3	application	reject	Level 3	clue	provide
Level 3	arrow	shoot	Level 3	coin	flip
Level 3	assignment	give	Level 3	coin	toss
Level 3	assumption	make	Level 3	colony	establish
Level 3	banana	peel	Level 3	column	write
Level 3	basket	make	Level 3	comparison	draw
Level 3	battery	charge	Level 3	comparison	make
Level 3	battery	recharge	Level 3	comparison	stand
Level 3	beef	roast	Level 3	confusion	cause
Level 3	beer	drink	Level 3	consciousness	regain
Level 3	belt	buckle	Level 3	consequence	face
Level 3	belt	fasten	Level 3	consequence	suffer
Level 3	belt	tighten	Level 3	constitution	adopt
Level 3	bet	win	Level 3	constitution	amend
Level 3	bicycle	ride	Level 3	craft	learn
Level 3	bike	ride	Level 3	declaration	issue
Level 3	bond	issue	Level 3	declaration	make
Level 3	burden	bear	Level 3	delight	take

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 3	demonstration	stage	Level 3	fate	suffer
Level 3	description	give	Level 3	feather	pluck
Level 3	destination	reach	Level 3	fence	build
Level 3	diamond	set	Level 3	file	open
Level 3	dignity	maintain	Level 3	file	keep
Level 3	disappointment	express	Level 3	file	close
Level 3	divorce	get	Level 3	fist	clench
Level 3	document	sign	Level 3	fist	shake
Level 3	drawer	open	Level 3	flag	fly
Level 3	drum	beat	Level 3	flag	hoist
Level 3	efficiency	improve	Level 3	flag	raise
Level 3	efficiency	increase	Level 3	flag	wave
Level 3	emphasis	place	Level 3	flame	fan
Level 3	emphasis	put	Level 3	fortune	make
Level 3	entertainment	provide	Level 3	fortune	spend
Level 3	envelope	address	Level 3	fortune	lose
Level 3	envelope	seal	Level 3	fortune	tell
Level 3	equality	achieve	Level 3	foundation	lay
Level 3	error	commit	Level 3	funeral	attend
Level 3	error	make	Level 3	fur	wear
Level 3	error	correct	Level 3	gear	change
Level 3	essay	write	Level 3	glory	bring
Level 3	exam	sit	Level 3	golf	play
Level 3	exam	take	Level 3	grip	get
Level 3	exam	fail	Level 3	grip	lose
Level 3	exam	pass	Level 3	grip	loosen
Level 3	exception	make	Level 3	grip	tighten
Level 3	expedition	lead	Level 3	handicap	overcome
Level 3	eyebrow	pluck	Level 3	happiness	bring
Level 3	fate	decide	Level 3	hint	give
Level 3	fate	seal	Level 3	hint	take
Level 3	fate	meet	Level 3	horn	blow

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 3	horn	honk	Level 3	miracle	perform
Level 3	horn	sound	Level 3	motion	pass
Level 3	horn	lock	Level 3	motion	table
Level 3	illusion	create	Level 3	myth	dispel
Level 3	illusion	give	Level 3	myth	explode
Level 3	illusion	shatter	Level 3	needle	thread
Level 3	improvement	show	Level 3	nest	build
Level 3	instinct	follow	Level 3	nightmare	have
Level 3	interpretation	put	Level 3	nonsense	talk
Level 3	invitation	extend	Level 3	notion	dispel
Level 3	invitation	issue	Level 3	nut	crack
Level 3	invitation	send	Level 3	pace	set
Level 3	invitation	receive	Level 3	pace	keep
Level 3	invitation	accept	Level 3	panic	cause
Level 3	invitation	decline	Level 3	passion	arouse
Level 3	jet	fly	Level 3	peak	reach
Level 3	judgment	exercise	Level 3	permission	give
Level 3	judgment	make	Level 3	permission	grant
Level 3	judgment	pass	Level 3	permission	refuse
Level 3	judgment	reserve	Level 3	permission	ask
Level 3	ladder	climb	Level 3	phase	enter
Level 3	lamp	light	Level 3	photo	take
Level 3	landing	make	Level 3	portrait	paint
Level 3	lawn	mow	Level 3	possession	take
Level 3	lifetime	last	Level 3	praise	earn
Level 3	load	carry	Level 3	praise	win
Level 3	luxury	afford	Level 3	praise	heap
Level 3	mask	wear	Level 3	prayer	offer
Level 3	medal	award	Level 3	prayer	say
Level 3	medal	get	Level 3	prayer	answer
Level 3	medal	win	Level 3	preference	give
Level 3	mess	make	Level 3	preference	express

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 3	preparation	make	Level 3	sensation	cause
Level 3	presentation	make	Level 3	sensation	create
Level 3	presentation	give	Level 3	sensation	feel
Level 3	priority	take	Level 3	settlement	negotiate
Level 3	priority	give	Level 3	settlement	reach
Level 3	recipe	follow	Level 3	shame	feel
Level 3	recognition	gain	Level 3	shell	fire
Level 3	recognition	get	Level 3	shelter	provide
Level 3	regret	express	Level 3	shelter	seek
Level 3	reputation	acquire	Level 3	shelter	take
Level 3	reputation	earn	Level 3	shower	take
Level 3	reputation	establish	Level 3	signature	forge
Level 3	reputation	gain	Level 3	slave	free
Level 3	reservation	make	Level 3	stamp	put
Level 3	resistance	offer	Level 3	stamp	issue
Level 3	ritual	perform	Level 3	stamp	collect
Level 3	rope	pull	Level 3	statue	erect
Level 3	rope	tie	Level 3	steel	make
Level 3	routine	change	Level 3	strain	put
Level 3	rumor	spread	Level 3	stroke	suffer
Level 3	rumor	deny	Level 3	suicide	commit
Level 3	sack	get	Level 3	suicide	attempt
Level 3	sacrifice	make	Level 3	surgery	undergo
Level 3	sacrifice	offer	Level 3	suspect	arrest
Level 3	salary	pay	Level 3	sword	draw
Level 3	salary	cut	Level 3	sympathy	express
Level 3	satellite	launch	Level 3	sympathy	feel
Level 3	satellite	orbit	Level 3	sympathy	show
Level 3	satisfaction	express	Level 3	tension	reduce
Level 3	satisfaction	feel	Level 3	tension	ease
Level 3	satisfaction	get	Level 3	tent	erect
Level 3	satisfaction	have	Level 3	tent	pitch

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 3	territory	occupy	Level 2	advance	make
Level 3	thrill	feel	Level 2	advantage	gain
Level 3	thrill	get	Level 2	advantage	take
Level 3	toe	curl	Level 2	advice	give
Level 3	toilet	use	Level 2	advice	offer
Level 3	toilet	flush	Level 2	advice	take
Level 3	tooth	brush	Level 2	advice	seek
Level 3	tooth	clench	Level 2	affair	have
Level 3	tooth	gnash	Level 2	agreement	reach
Level 3	tooth	grit	Level 2	agreement	sign
Level 3	trail	leave	Level 2	aim	achieve
Level 3	trail	follow	Level 2	aim	take
Level 3	treaty	sign	Level 2	anger	express
Level 3	treaty	ratify	Level 2	anger	feel
Level 3	trend	set	Level 2	appeal	make
Level 3	trend	buck	Level 2	appeal	lose
Level 3	tune	play	Level 2	appeal	reject
Level 3	tune	sing	Level 2	appearance	make
Level 3	tunnel	build	Level 2	apple	core
Level 3	twist	take	Level 2	apple	peel
Level 3	van	drive	Level 2	appointment	keep
Level 3	vitamin	take	Level 2	appointment	make
Level 3	whistle	blow	Level 2	arrangement	make
Level 3	whistle	give	Level 2	arrest	make
Level 3	wisdom	doubt	Level 2	arrest	resist
Level 3	wisdom	question	Level 2	article	publish
Level 2	access	gain	Level 2	award	make
Level 2	access	deny	Level 2	award	receive
Level 2	access	give	Level 2	award	win
Level 2	accord	reach	Level 2	balance	strike
Level 2	accord	sign	Level 2	balance	keep
Level 2	account	give	Level 2	ban	impose

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 2	ban	lift	Level 2	bridge	cross
Level 2	basis	form	Level 2	cake	bake
Level 2	basis	provide	Level 2	campaign	launch
Level 2	bath	take	Level 2	cash	pay
Level 2	battle	fight	Level 2	championship	hold
Level 2	battle	lose	Level 2	championship	win
Level 2	battle	win	Level 2	charge	take
Level 2	belief	hold	Level 2	childhood	spend
Level 2	bell	ring	Level 2	cigarette	light
Level 2	bell	sound	Level 2	cigarette	smoke
Level 2	benefit	get	Level 2	claim	make
Level 2	bill	pass	Level 2	coffee	make
Level 2	bill	pay	Level 2	coffee	drink
Level 2	birth	give	Level 2	comfort	give
Level 2	birthday	celebrate	Level 2	comfort	provide
Level 2	bite	take	Level 2	comfort	find
Level 2	blame	put	Level 2	comfort	take
Level 2	blame	take	Level 2	command	take
Level 2	blow	deliver	Level 2	comment	make
Level 2	blow	strike	Level 2	competition	face
Level 2	bomb	explode	Level 2	competition	hold
Level 2	bomb	plant	Level 2	concept	understand
Level 2	bone	break	Level 2	concert	hold
Level 2	border	cross	Level 2	conclusion	draw
Level 2	border	guard	Level 2	conclusion	reach
Level 2	bottle	break	Level 2	conference	hold
Level 2	bow	take	Level 2	conference	attend
Level 2	breath	draw	Level 2	conflict	resolve
Level 2	breath	take	Level 2	connection	make
Level 2	breath	catch	Level 2	contest	enter
Level 2	breath	hold	Level 2	contest	win
Level 2	bridge	build	Level 2	contract	sign

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 2	contribution	make	Level 2	egg	fry
Level 2	copy	make	Level 2	election	win
Level 2	courage	show	Level 2	emotion	show
Level 2	courage	have	Level 2	emotion	express
Level 2	courage	take	Level 2	emotion	control
Level 2	cow	milk	Level 2	enemy	make
Level 2	cream	whip	Level 2	engine	start
Level 2	credit	give	Level 2	entrance	make
Level 2	credit	offer	Level 2	evidence	give
Level 2	credit	get	Level 2	evidence	find
Level 2	crime	commit	Level 2	excitement	cause
Level 2	crisis	resolve	Level 2	excitement	feel
Level 2	crisis	face	Level 2	excuse	make
Level 2	crop	grow	Level 2	exhibition	hold
Level 2	crop	yield	Level 2	experiment	conduct
Level 2	crown	win	Level 2	experiment	do
Level 2	curtain	draw	Level 2	explanation	give
Level 2	data	process	Level 2	explanation	offer
Level 2	debt	pay	Level 2	factory	close
Level 2	defeat	suffer	Level 2	faith	put
Level 2	desire	express	Level 2	faith	lose
Level 2	desire	feel	Level 2	faith	keep
Level 2	destruction	cause	Level 2	fault	find
Level 2	detail	give	Level 2	favor	do
Level 2	diary	keep	Level 2	festival	hold
Level 2	discovery	make	Level 2	flat	get
Level 2	drug	take	Level 2	flight	take
Level 2	duty	perform	Level 2	fool	make
Level 2	ear	pierce	Level 2	football	play
Level 2	egg	fertilize	Level 2	friendship	form
Level 2	egg	beat	Level 2	function	perform
Level 2	egg	boil	Level 2	gap	leave

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 2	gap	bridge	Level 2	interview	conduct
Level 2	gap	close	Level 2	interview	give
Level 2	gap	fill	Level 2	joke	tell
Level 2	gate	close	Level 2	joke	make
Level 2	gate	open	Level 2	journey	make
Level 2	gaze	fix	Level 2	joy	feel
Level 2	gesture	make	Level 2	justice	do
Level 2	gift	give	Level 2	kick	get
Level 2	gift	exchange	Level 2	kiss	blow
Level 2	glance	cast	Level 2	knee	bend
Level 2	glance	shoot	Level 2	knife	sharpen
Level 2	grade	get	Level 2	lecture	deliver
Level 2	grass	cut	Level 2	lecture	give
Level 2	grave	dig	Level 2	lecture	attend
Level 2	grave	desecrate	Level 2	lesson	give
Level 2	habit	form	Level 2	lesson	take
Level 2	habit	make	Level 2	lesson	learn
Level 2	harm	cause	Level 2	lesson	teach
Level 2	harm	do	Level 2	lip	lick
Level 2	height	reach	Level 2	lip	purse
Level 2	holiday	take	Level 2	lip	bite
Level 2	imagination	capture	Level 2	luck	try
Level 2	imagination	lack	Level 2	magic	work
Level 2	impact	have	Level 2	map	draw
Level 2	impact	make	Level 2	meat	grill
Level 2	impression	create	Level 2	meat	cook
Level 2	impression	make	Level 2	medicine	practise
Level 2	impression	get	Level 2	medicine	take
Level 2	independence	declare	Level 2	medicine	prescribe
Level 2	injury	suffer	Level 2	murder	commit
Level 2	instruction	give	Level 2	muscle	flex
Level 2	intelligence	gather	Level 2	muscle	tense

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 2	muscle	pull	Level 2	prisoner	release
Level 2	muscle	relax	Level 2	prize	award
Level 2	mystery	solve	Level 2	prize	receive
Level 2	noise	make	Level 2	prize	win
Level 2	nose	blow	Level 2	prize	take
Level 2	odd	beat	Level 2	production	increase
Level 2	orange	peel	Level 2	profit	make
Level 2	passage	book	Level 2	property	buy
Level 2	passenger	carry	Level 2	property	sell
Level 2	path	follow	Level 2	protection	give
Level 2	photograph	take	Level 2	protection	offer
Level 2	phrase	coin	Level 2	protection	provide
Level 2	pipe	light	Level 2	protest	stage
Level 2	pipe	smoke	Level 2	purchase	make
Level 2	pleasure	give	Level 2	reaction	cause
Level 2	pleasure	get	Level 2	remark	make
Level 2	pocket	empty	Level 2	repair	do
Level 2	poem	write	Level 2	repair	make
Level 2	poem	read	Level 2	request	make
Level 2	poetry	write	Level 2	request	grant
Level 2	poetry	read	Level 2	request	refuse
Level 2	pollution	control	Level 2	request	reject
Level 2	possibility	consider	Level 2	rescue	attempt
Level 2	possibility	raise	Level 2	response	make
Level 2	potato	bake	Level 2	response	get
Level 2	potato	fry	Level 2	response	receive
Level 2	potato	mash	Level 2	responsibility	accept
Level 2	potato	roast	Level 2	responsibility	assume
Level 2	pride	take	Level 2	responsibility	take
Level 2	principle	apply	Level 2	reward	offer
Level 2	prisoner	take	Level 2	reward	reap
Level 2	prisoner	hold	Level 2	risk	run

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 2	risk	take	Level 2	survey	conduct
Level 2	roll	call	Level 2	switch	make
Level 2	root	take	Level 2	tale	tell
Level 2	route	follow	Level 2	talent	display
Level 2	route	take	Level 2	talent	show
Level 2	seed	plant	Level 2	talent	develop
Level 2	seed	sow	Level 2	tape	make
Level 2	sex	have	Level 2	tape	play
Level 2	shadow	cast	Level 2	target	hit
Level 2	shock	get	Level 2	task	perform
Level 2	shoe	wear	Level 2	tax	pay
Level 2	shot	take	Level 2	tax	increase
Level 2	shot	get	Level 2	tax	raise
Level 2	sigh	breathe	Level 2	tax	cut
Level 2	sigh	give	Level 2	technique	develop
Level 2	signal	give	Level 2	temperature	control
Level 2	signal	send	Level 2	tennis	play
Level 2	silence	break	Level 2	threat	make
Level 2	soul	save	Level 2	threat	pose
Level 2	soul	search	Level 2	throat	clear
Level 2	spell	cast	Level 2	throat	cut
Level 2	stair	climb	Level 2	throat	slit
Level 2	statement	issue	Level 2	ticket	buy
Level 2	statement	make	Level 2	ticket	get
Level 2	status	give	Level 2	tie	establish
Level 2	stock	buy	Level 2	tie	cut
Level 2	stock	sell	Level 2	tip	get
Level 2	storm	weather	Level 2	tip	give
Level 2	suggestion	make	Level 2	title	win
Level 2	suggestion	offer	Level 2	title	defend
Level 2	suggestion	reject	Level 2	tool	use
Level 2	suit	follow	Level 2	topic	discuss

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 2	trace	leave	Level 1	address	give
Level 2	trace	show	Level 1	answer	give
Level 2	track	keep	Level 1	answer	provide
Level 2	trap	set	Level 1	answer	know
Level 2	treatment	get	Level 1	answer	get
Level 2	treatment	receive	Level 1	approach	take
Level 2	trick	play	Level 1	attack	launch
Level 2	truck	drive	Level 1	attempt	make
Level 2	urge	feel	Level 1	attention	attract
Level 2	vehicle	drive	Level 1	attention	draw
Level 2	victory	win	Level 1	attention	pay
Level 2	wage	pay	Level 1	attention	focus
Level 2	wage	cut	Level 1	attitude	take
Level 2	warning	give	Level 1	audience	attract
Level 2	warning	issue	Level 1	baby	have
Level 2	warning	heed	Level 1	bag	pack
Level 2	warning	receive	Level 1	ball	play
Level 2	warning	ignore	Level 1	ball	hit
Level 2	weekend	spend	Level 1	boat	sail
Level 2	weight	gain	Level 1	boat	take
Level 2	weight	lose	Level 1	book	write
Level 2	wheel	turn	Level 1	book	publish
Level 2	wine	make	Level 1	break	make
Level 2	wine	produce	Level 1	break	take
Level 2	wing	clip	Level 1	bus	catch
Level 2	wing	spread	Level 1	bus	take
Level 2	witness	call	Level 1	business	do
Level 2	wound	inflict	Level 1	call	make
Level 2	wound	receive	Level 1	call	get
Level 1	accident	cause	Level 1	call	receive
Level 1	act	commit	Level 1	call	return
Level 1	action	take	Level 1	car	drive

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 1	car	park	Level 1	danger	face
Level 1	card	play	Level 1	date	fix
Level 1	care	take	Level 1	date	set
Level 1	chair	take	Level 1	deal	do
Level 1	challenge	face	Level 1	deal	make
Level 1	challenge	meet	Level 1	death	cause
Level 1	chance	take	Level 1	decision	make
Level 1	change	make	Level 1	decision	take
Level 1	character	play	Level 1	demand	make
Level 1	check	make	Level 1	demand	meet
Level 1	choice	make	Level 1	demand	reject
Level 1	class	attend	Level 1	difference	make
Level 1	club	join	Level 1	difference	tell
Level 1	computer	use	Level 1	difference	resolve
Level 1	concern	cause	Level 1	difference	settle
Level 1	concern	express	Level 1	difficulty	make
Level 1	contact	make	Level 1	difficulty	present
Level 1	conversation	have	Level 1	difficulty	face
Level 1	conversation	make	Level 1	difficulty	have
Level 1	corner	turn	Level 1	direction	change
Level 1	cost	pay	Level 1	disease	spread
Level 1	cost	reduce	Level 1	disease	transmit
Level 1	course	take	Level 1	distance	keep
Level 1	course	run	Level 1	door	close
Level 1	crowd	draw	Level 1	door	shut
Level 1	cut	make	Level 1	door	lock
Level 1	damage	cause	Level 1	door	open
Level 1	damage	do	Level 1	doubt	express
Level 1	damage	suffer	Level 1	effect	have
Level 1	damage	repair	Level 1	effect	take
Level 1	dance	perform	Level 1	effort	make
Level 1	danger	pose	Level 1	escape	make

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 1	example	give	Level 1	garden	plant
Level 1	example	follow	Level 1	glass	make
Level 1	exercise	take	Level 1	goal	set
Level 1	exercise	get	Level 1	goal	achieve
Level 1	exercise	do	Level 1	guess	make
Level 1	experience	share	Level 1	gun	fire
Level 1	eye	close	Level 1	gun	carry
Level 1	eye	shut	Level 1	hair	cut
Level 1	eye	open	Level 1	hand	shake
Level 1	eye	catch	Level 1	hand	take
Level 1	face	make	Level 1	hand	hold
Level 1	fact	face	Level 1	head	shake
Level 1	family	support	Level 1	heart	break
Level 1	farm	work	Level 1	history	make
Level 1	fear	express	Level 1	hole	drill
Level 1	film	make	Level 1	hole	make
Level 1	film	see	Level 1	hope	raise
Level 1	final	reach	Level 1	hope	dash
Level 1	fine	impose	Level 1	horse	ride
Level 1	fine	pay	Level 1	husband	leave
Level 1	fire	set	Level 1	idea	get
Level 1	fire	start	Level 1	image	improve
Level 1	fire	catch	Level 1	influence	exert
Level 1	fire	cease	Level 1	influence	use
Level 1	fish	catch	Level 1	information	give
Level 1	food	eat	Level 1	information	provide
Level 1	force	use	Level 1	issue	raise
Level 1	form	take	Level 1	job	do
Level 1	friend	make	Level 1	job	find
Level 1	future	plan	Level 1	job	get
Level 1	game	play	Level 1	job	take
Level 1	game	win	Level 1	job	lose

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 1	jump	make	Level 1	mention	make
Level 1	language	use	Level 1	message	send
Level 1	language	learn	Level 1	message	deliver
Level 1	language	speak	Level 1	message	leave
Level 1	law	pass	Level 1	message	get
Level 1	lead	follow	Level 1	message	receive
Level 1	lead	take	Level 1	method	use
Level 1	leave	take	Level 1	mine	work
Level 1	leg	cross	Level 1	mistake	make
Level 1	letter	write	Level 1	mistake	correct
Level 1	letter	send	Level 1	money	make
Level 1	letter	get	Level 1	money	raise
Level 1	letter	receive	Level 1	mountain	climb
Level 1	letter	open	Level 1	mouth	shut
Level 1	letter	answer	Level 1	mouth	open
Level 1	lie	tell	Level 1	move	make
Level 1	lift	get	Level 1	movie	make
Level 1	limit	impose	Level 1	need	meet
Level 1	line	draw	Level 1	newspaper	publish
Level 1	line	take	Level 1	night	spend
Level 1	look	take	Level 1	note	write
Level 1	loss	suffer	Level 1	note	take
Level 1	loss	cut	Level 1	note	make
Level 1	love	make	Level 1	notice	give
Level 1	mark	make	Level 1	notice	take
Level 1	matter	discuss	Level 1	offer	make
Level 1	meal	cook	Level 1	office	take
Level 1	meal	eat	Level 1	opinion	express
Level 1	meal	make	Level 1	opinion	give
Level 1	measure	take	Level 1	opinion	hold
Level 1	meeting	call	Level 1	opportunity	take
Level 1	meeting	hold	Level 1	opportunity	give

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 1	opportunity	offer	Level 1	price	cut
Level 1	opportunity	miss	Level 1	problem	cause
Level 1	order	keep	Level 1	problem	solve
Level 1	order	maintain	Level 1	product	market
Level 1	pain	cause	Level 1	progress	make
Level 1	pain	feel	Level 1	promise	make
Level 1	pain	take	Level 1	promise	keep
Level 1	pain	ease	Level 1	promise	break
Level 1	paint	spray	Level 1	purpose	serve
Level 1	paper	read	Level 1	question	ask
Level 1	paper	publish	Level 1	question	raise
Level 1	part	take	Level 1	question	answer
Level 1	part	play	Level 1	rate	fix
Level 1	patient	treat	Level 1	rate	lower
Level 1	pattern	establish	Level 1	reason	give
Level 1	pattern	set	Level 1	record	break
Level 1	pattern	follow	Level 1	record	keep
Level 1	peace	make	Level 1	record	make
Level 1	peace	keep	Level 1	reply	send
Level 1	performance	give	Level 1	reply	get
Level 1	picture	take	Level 1	reply	receive
Level 1	picture	paint	Level 1	research	do
Level 1	place	take	Level 1	respect	show
Level 1	plan	make	Level 1	result	produce
Level 1	plant	grow	Level 1	result	show
Level 1	plant	water	Level 1	ride	get
Level 1	point	make	Level 1	ride	take
Level 1	point	get	Level 1	river	cross
Level 1	position	take	Level 1	role	play
Level 1	position	hold	Level 1	round	fire
Level 1	pressure	increase	Level 1	rule	make
Level 1	price	increase	Level 1	rule	apply

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 1	school	leave	Level 1	step	take
Level 1	sea	sail	Level 1	stone	throw
Level 1	search	conduct	Level 1	stone	set
Level 1	seat	take	Level 1	stop	make
Level 1	seat	win	Level 1	stop	put
Level 1	seat	lose	Level 1	story	tell
Level 1	secret	keep	Level 1	stress	cause
Level 1	sense	make	Level 1	strike	call
Level 1	sentence	impose	Level 1	study	conduct
Level 1	sentence	pass	Level 1	study	do
Level 1	sentence	suspend	Level 1	subject	change
Level 1	service	provide	Level 1	success	achieve
Level 1	shape	take	Level 1	success	make
Level 1	ship	sail	Level 1	support	give
Level 1	ship	board	Level 1	surprise	express
Level 1	shoulder	shrug	Level 1	table	set
Level 1	shout	give	Level 1	talk	hold
Level 1	sight	catch	Level 1	tea	make
Level 1	sight	lose	Level 1	tea	drink
Level 1	sign	show	Level 1	teacher	train
Level 1	skill	develop	Level 1	technology	develop
Level 1	skill	learn	Level 1	technology	use
Level 1	song	write	Level 1	telephone	tap
Level 1	song	sing	Level 1	television	watch
Level 1	sound	make	Level 1	test	take
Level 1	speech	deliver	Level 1	test	do
Level 1	speech	give	Level 1	thing	do
Level 1	speech	make	Level 1	thing	say
Level 1	stand	make	Level 1	thought	have
Level 1	stand	take	Level 1	time	take
Level 1	standard	set	Level 1	touch	lose
Level 1	start	make	Level 1	train	catch

Level	Nodes	Collocates	Level	Nodes	Collocates
Level 1	train	take	Level 1	window	open
Level 1	tree	plant	Level 1	wish	make
Level 1	trip	make	Level 1	wood	cut
Level 1	trip	take	Level 1	work	do
Level 1	trouble	cause			
Level 1	trouble	have			
Level 1	truth	tell			
Level 1	turn	make			
Level 1	turn	take			
Level 1	use	make			
Level 1	value	set			
Level 1	video	make			
Level 1	video	show			
Level 1	video	watch			
Level 1	view	express			
Level 1	view	hold			
Level 1	view	exchange			
Level 1	view	take			
Level 1	visit	make			
Level 1	visit	pay			
Level 1	voice	raise			
Level 1	vote	count			
Level 1	vote	cast			
Level 1	vote	get			
Level 1	walk	take			
Level 1	wall	paint			
Level 1	war	fight			
Level 1	watch	keep			
Level 1	water	drink			
Level 1	way	make			
Level 1	way	find			
Level 1	welcome	give			

Appendix B. Frequency of collocations in the TIME corpus

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Art & Entertainment	Art & Entertainment	Movie
1	45	thing	do	4	Others	Others	Essay
1	45	thing	do	4	Others	Others	Interview
1	45	thing	do	4	Others	Others	Interview
1	45	thing	do	4	Others	Others	Interview
1	45	thing	do	4	Others	Others	Letter
1	45	thing	do	4	Others	Others	Letter
1	45	thing	do	4	Others	Others	Letter
1	45	thing	do	4	Others	Others	Letter & From the editor
1	45	thing	do	4	Social science	World	World
1	45	thing	do	4	Social science	World	World
1	45	thing	do	4	Social science	World	World
1	45	thing	do	4	Social science	World	World
1	45	thing	do	4	Social science	World	World
1	45	thing	do	4	Social science	World	World
1	45	thing	do	4	Social science	World	World (Iraq)
1	45	thing	do	4	Social science	Nation	Nation
1	45	thing	do	4	Social science	Nation	Nation
1	45	thing	do	4	Social science	Nation	Nation
1	45	thing	do	4	Social science	Nation	Nation
1	45	thing	do	4	Social science	Nation	Nation
1	45	thing	do	4	Social science	Nation	Nation
1	45	thing	do	4	Social science	Nation	Nation (election)
1	45	thing	do	4	Social science	Nation	Nation (election)
1	45	thing	do	4	Social science	Nation	Nation (Kerry Election)
1	45	thing	do	4	Social science	Nation	Nation (Kerry Election)
1	45	thing	do	4	Social science	Nation	Nation (Kerry Election)
1	45	thing	do	4	Social science	Nation	Nation (War)
1	45	thing	do	4	Social science	Nation	Nation (War)
1	45	thing	do	4	Social science	Business	Business (Car)
1	45	thing	do	4	Science & Technology	Science & Technology	Health (Sex)
1	45	thing	do	4	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
1	45	thing	do	4	Science & Technology	Science & Technology	Health (Sex)
1	45	thing	do	4	Science & Technology	Science & Technology	Health (Sex)
1	45	thing	do	4	Science & Technology	Science & Technology	Space
1	45	thing	do	4	Science & Technology	Science & Technology	Technology
1	45	thing	do	4	Science & Technology	Science & Technology	Technology
1	45	thing	do	4	Science & Technology	Science & Technology	Technology
1	45	thing	do	4	Science & Technology	Science & Technology	Time in Depth (Science)
2	39	role	play	4	Art & Entertainment	Art & Entertainment	Movie
2	39	role	play	4	Art & Entertainment	Art & Entertainment	Movie
2	39	role	play	4	Art & Entertainment	Art & Entertainment	Music
2	39	role	play	4	Art & Entertainment	Art & Entertainment	Television
2	39	role	play	4	Others	Others	Essay
2	39	role	play	4	Others	Others	Letter
2	39	role	play	4	Others	Others	Letter
2	39	role	play	4	Others	Others	Letter
2	39	role	play	4	Others	Others	Letter & Notebook
2	39	role	play	4	Others	Others	Letter & Notebook
2	39	role	play	4	Social science	World	World
2	39	role	play	4	Social science	World	World
2	39	role	play	4	Social science	World	World
2	39	role	play	4	Social science	World	World
2	39	role	play	4	Social science	World	World
2	39	role	play	4	Social science	World	World (Iraq)
2	39	role	play	4	Social science	World	World (Saddam)
2	39	role	play	4	Social science	Nation	Nation
2	39	role	play	4	Social science	Nation	Nation
2	39	role	play	4	Social science	Business	Business
2	39	role	play	4	Social science	Business	Business
2	39	role	play	4	Social science	Business	Business (Martha)
2	39	role	play	4	Science & Technology	Science & Technology	Health
2	39	role	play	4	Science & Technology	Science & Technology	Health
2	39	role	play	4	Science & Technology	Science & Technology	Health
2	39	role	play	4	Science & Technology	Science & Technology	Health
2	39	role	play	4	Science & Technology	Science & Technology	Health
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Health (Sex)
2	39	role	play	4	Science & Technology	Science & Technology	Time in Depth (Science)
3	24	job	do	4	Art & Entertainment	Art & Entertainment	Movie & Books
3	24	job	do	4	Art & Entertainment	Art & Entertainment	Music
3	24	job	do	4	Art & Entertainment	Art & Entertainment	Television
3	24	job	do	4	Art & Entertainment	Art & Entertainment	Theater
3	24	job	do	4	Others	Others	Interview
3	24	job	do	4	Others	Others	Letter
3	24	job	do	4	Social science	World	World
3	24	job	do	4	Social science	World	World
3	24	job	do	4	Social science	World	World
3	24	job	do	4	Social science	World	World
3	24	job	do	4	Social science	World	World (Iraq)
3	24	job	do	4	Social science	World	World (terrorism)
3	24	job	do	4	Social science	Society	Crime
3	24	job	do	4	Social science	Nation	Nation
3	24	job	do	4	Social science	Nation	Nation
3	24	job	do	4	Social science	Nation	Nation
3	24	job	do	4	Social science	Nation	Nation
3	24	job	do	4	Social science	Nation	Nation
3	24	job	do	4	Social science	Nation	Nation
3	24	job	do	4	Social science	Nation	Nation (John Kerry)
3	24	job	do	4	Social science	Nation	Nation (War)
3	24	job	do	4	Science & Technology	Science & Technology	Health
3	24	job	do	4	Science & Technology	Science & Technology	Health (Sex)
3	24	job	do	4	Science & Technology	Science & Technology	Technology
4	23	work	do	4	Art & Entertainment	Art & Entertainment	Movie
4	23	work	do	4	Art & Entertainment	Art & Entertainment	Television
4	23	work	do	4	Others	Others	Interview
4	23	work	do	4	Others	Others	Life Style
4	23	work	do	4	Others	Others	Notebook
4	23	work	do	4	Social science	World	World
4	23	work	do	4	Social science	World	World
4	23	work	do	4	Social science	World	World (Iraq)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
4	23	work	do	4	Social science	World	World (terrorism)
4	23	work	do	4	Social science	Society	Religion
4	23	work	do	4	Social science	Society	Religion
4	23	work	do	4	Social science	Society	Society
4	23	work	do	4	Social science	Nation	Nation
4	23	work	do	4	Social science	Nation	Nation
4	23	work	do	4	Social science	Nation	Nation
4	23	work	do	4	Social science	Nation	Nation
4	23	work	do	4	Social science	Nation	Nation
4	23	work	do	4	Social science	Nation	Nation
4	23	work	do	4	Social science	Nation	Nation (election)
4	23	work	do	4	Social science	Nation	Nation (John Kerry)
4	23	work	do	4	Science & Technology	Science & Technology	Health
4	23	work	do	4	Science & Technology	Science & Technology	Science
4	23	work	do	4	Science & Technology	Science & Technology	Space (Science)
5	21	way	find	4	Art & Entertainment	Art & Entertainment	Movie
5	21	way	find	4	Others	Others	People
5	21	way	find	4	Social science	World	World
5	21	way	find	4	Social science	World	World
5	21	way	find	4	Social science	World	World
5	21	way	find	4	Social science	Society	Religion
5	21	way	find	4	Social science	Society	Religion
5	21	way	find	4	Social science	Society	Society
5	21	way	find	4	Social science	Nation	Nation
5	21	way	find	4	Social science	Nation	Nation
5	21	way	find	4	Social science	Nation	Nation
5	21	way	find	4	Social science	Nation	Nation (Kerry Election)
5	21	way	find	4	Social science	Nation	Nation (Politics)
5	21	way	find	4	Social science	Nation	Nation (Politics)
5	21	way	find	4	Social science	Nation	Nation (War)
5	21	way	find	4	Social science	Business	Business
5	21	way	find	4	Social science	Business	Business
5	21	way	find	4	Social science	Business	Business (Mad Cow)
5	21	way	find	4	Social science	Business	Business (Martha)
5	21	way	find	4	Science & Technology	Science & Technology	Health (Sex)
5	21	way	find	4	Science & Technology	Science & Technology	Time in Depth (Science)
6	19	sex	have	4	Art & Entertainment	Art & Entertainment	Book
6	19	sex	have	4	Art & Entertainment	Art & Entertainment	Book
6	19	sex	have	4	Art & Entertainment	Art & Entertainment	Movie

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
6	19	sex	have	4	Others	Others	Interview
6	19	sex	have	4	Others	Others	Letter & in the Arena
6	19	sex	have	4	Others	Others	Letter & in the Arena
6	19	sex	have	4	Others	Others	Notebook
6	19	sex	have	4	Social science	World	World (Iraq)
6	19	sex	have	4	Social science	Nation	Nation
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	sex	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	story	tell	4	Art & Entertainment	Art & Entertainment	Book
6	19	story	tell	4	Art & Entertainment	Art & Entertainment	Movie
6	19	story	tell	4	Art & Entertainment	Art & Entertainment	Movie
6	19	story	tell	4	Art & Entertainment	Art & Entertainment	Movie
6	19	story	tell	4	Art & Entertainment	Art & Entertainment	Television
6	19	story	tell	4	Others	Others	Essay
6	19	story	tell	4	Others	Others	Letter
6	19	story	tell	4	Others	Others	Letter & From the editor
6	19	story	tell	4	Others	Others	Letter & From the editor
6	19	story	tell	4	Others	Others	Your Time
6	19	story	tell	4	Social science	Society	Society
6	19	story	tell	4	Social science	Society	Society (Gang)
6	19	story	tell	4	Social science	Nation	Nation
6	19	story	tell	4	Social science	Nation	Nation
6	19	story	tell	4	Social science	Nation	Nation
6	19	story	tell	4	Social science	Nation	Nation (John Kerry)
6	19	story	tell	4	Social science	Nation	Nation (War)
6	19	story	tell	4	Science & Technology	Science & Technology	Health (Sex)
6	19	story	tell	4	Science & Technology	Science & Technology	Science
6	19	trouble	have	4	Art & Entertainment	Sports	Sports
6	19	trouble	have	4	Art & Entertainment	Art & Entertainment	Movie
6	19	trouble	have	4	Others	Others	Letter
6	19	trouble	have	4	Others	Others	Letter

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
6	19	trouble	have	4	Others	Others	Notebook
6	19	trouble	have	4	Social science	World	World
6	19	trouble	have	4	Social science	World	World
6	19	trouble	have	4	Social science	Society	Religion
6	19	trouble	have	4	Social science	Society	Society
6	19	trouble	have	4	Social science	Nation	Nation
6	19	trouble	have	4	Social science	Nation	Nation
6	19	trouble	have	4	Social science	Nation	Nation
6	19	trouble	have	4	Social science	Nation	Nation
6	19	trouble	have	4	Social science	Nation	Nation (Politics)
6	19	trouble	have	4	Social science	Business	Business (Car)
6	19	trouble	have	4	Science & Technology	Science & Technology	Health
6	19	trouble	have	4	Science & Technology	Science & Technology	Health
6	19	trouble	have	4	Science & Technology	Science & Technology	Health (Sex)
6	19	trouble	have	4	Science & Technology	Science & Technology	Medicine
9	18	question	ask	4	Art & Entertainment	Art & Entertainment	Television
9	18	question	ask	4	Others	Others	Essay
9	18	question	ask	4	Others	Others	Essay
9	18	question	ask	4	Others	Others	Essay
9	18	question	ask	4	Others	Others	Interview & Letter
9	18	question	ask	4	Social science	World	World
9	18	question	ask	4	Social science	World	World
9	18	question	ask	4	Social science	World	World
9	18	question	ask	4	Social science	World	World
9	18	question	ask	4	Social science	World	World (Iraq)
9	18	question	ask	4	Social science	World	World (terrorism)
9	18	question	ask	4	Social science	Nation	Nation
9	18	question	ask	4	Social science	Nation	Nation
9	18	question	ask	4	Social science	Nation	Nation (Politics)
9	18	question	ask	4	Social science	Nation	Nation (Politics)
9	18	question	ask	4	Social science	Nation	Nation (Politics)
9	18	question	ask	4	Social science	Business	Business
9	18	question	ask	4	Science & Technology	Science & Technology	Health (Sex)
10	17	place	take	4	Art & Entertainment	Art & Entertainment	Movie
10	17	place	take	4	Others	Others	Interview
10	17	place	take	4	Others	Others	Letter
10	17	place	take	4	Others	Others	Letter
10	17	place	take	4	Others	Others	Letter & in the Arena
10	17	place	take	4	Social science	World	World

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
10	17	place	take	4	Social science	World	World
10	17	place	take	4	Social science	World	World
10	17	place	take	4	Social science	Nation	Nation
10	17	place	take	4	Social science	Nation	Nation (Kerry Election)
10	17	place	take	4	Social science	Nation	Nation (Politics)
10	17	place	take	4	Social science	Business	Business
10	17	place	take	4	Social science	Business	Business
10	17	place	take	4	Social science	Business	Business
10	17	place	take	4	Science & Technology	Science & Technology	Space
10	17	place	take	4	Science & Technology	Science & Technology	Space
10	17	place	take	4	Science & Technology	Science & Technology	Space
11	16	decision	make	4	Art & Entertainment	Art & Entertainment	Television
11	16	decision	make	4	Others	Others	Essay
11	16	decision	make	4	Others	Others	Interview & Letter
11	16	decision	make	4	Others	Others	Letter
11	16	decision	make	4	Others	Others	Notebook
11	16	decision	make	4	Social science	World	World (Iraq)
11	16	decision	make	4	Social science	Society	Education
11	16	decision	make	4	Social science	Nation	Nation
11	16	decision	make	4	Social science	Nation	Nation (Politics)
11	16	decision	make	4	Social science	Nation	Nation (Politics)
11	16	decision	make	4	Social science	Nation	Nation (War)
11	16	decision	make	4	Social science	Business	Business
11	16	decision	make	4	Science & Technology	Science & Technology	Health (Sex)
11	16	decision	make	4	Science & Technology	Science & Technology	Medicine
11	16	decision	make	4	Science & Technology	Science & Technology	Medicine
11	16	decision	make	4	Science & Technology	Science & Technology	Science
11	16	sense	make	4	Art & Entertainment	Art & Entertainment	Movie
11	16	sense	make	4	Others	Others	Essay
11	16	sense	make	4	Others	Others	Essay
11	16	sense	make	4	Others	Others	Interview
11	16	sense	make	4	Others	Others	Interview
11	16	sense	make	4	Others	Others	Interview & Letter
11	16	sense	make	4	Others	Others	Your Time
11	16	sense	make	4	Social science	Society	Society
11	16	sense	make	4	Social science	Nation	Nation
11	16	sense	make	4	Social science	Nation	Nation (Kerry Election)
11	16	sense	make	4	Social science	Business	Business
11	16	sense	make	4	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
11	16	sense	make	4	Science & Technology	Science & Technology	Medicine
11	16	sense	make	4	Science & Technology	Science & Technology	Space
11	16	sense	make	4	Science & Technology	Science & Technology	Space
11	16	sense	make	4	Science & Technology	Science & Technology	Space
13	15	attention	pay	4	Art & Entertainment	Art & Entertainment	Movie
13	15	attention	pay	4	Art & Entertainment	Art & Entertainment	Music & Theater
13	15	attention	pay	4	Others	Others	Interview
13	15	attention	pay	4	Others	Others	Interview
13	15	attention	pay	4	Others	Others	Letter
13	15	attention	pay	4	Social science	World	World (Saddam)
13	15	attention	pay	4	Social science	Society	Society
13	15	attention	pay	4	Social science	Nation	Nation
13	15	attention	pay	4	Social science	Nation	Nation
13	15	attention	pay	4	Social science	Nation	Nation
13	15	attention	pay	4	Social science	Nation	Nation
13	15	attention	pay	4	Social science	Nation	Nation (election)
13	15	attention	pay	4	Social science	Nation	Nation (election)
13	15	attention	pay	4	Social science	Nation	Nation (Kerry Election)
13	15	attention	pay	4	Science & Technology	Science & Technology	Health
13	15	effect	have	4	Art & Entertainment	Art & Entertainment	Movie
13	15	effect	have	4	Art & Entertainment	Art & Entertainment	Movie
13	15	effect	have	4	Art & Entertainment	Art & Entertainment	Movie
13	15	effect	have	4	Art & Entertainment	Art & Entertainment	Movie
13	15	effect	have	4	Others	Others	Essay
13	15	effect	have	4	Others	Others	Your Time
13	15	effect	have	4	Social science	World	World (Iraq)
13	15	effect	have	4	Social science	Nation	Nation
13	15	effect	have	4	Science & Technology	Science & Technology	Health (Sex)
13	15	effect	have	4	Science & Technology	Science & Technology	Health (Sex)
13	15	effect	have	4	Science & Technology	Science & Technology	Health (Sex)
13	15	effect	have	4	Science & Technology	Science & Technology	Health (Sex)
13	15	effect	have	4	Science & Technology	Science & Technology	Health (Sex)
13	15	effect	have	4	Science & Technology	Science & Technology	Medicine
13	15	effect	have	4	Science & Technology	Science & Technology	Time in Depth (Science)
15	14	job	lose	4	Art & Entertainment	Art & Entertainment	Movie
15	14	job	lose	4	Others	Others	Letter
15	14	job	lose	4	Others	Others	Letter
15	14	job	lose	4	Others	Others	Letter & in the Arena
15	14	job	lose	4	Social science	Society	Society (Gang)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
15	14	job	lose	4	Social science	Nation	Nation
15	14	job	lose	4	Social science	Nation	Nation
15	14	job	lose	4	Social science	Nation	Nation
15	14	job	lose	4	Social science	Nation	Nation (election)
15	14	job	lose	4	Social science	Nation	Nation (John Kerry)
15	14	job	lose	4	Social science	Nation	Nation (John Kerry)
15	14	job	lose	4	Social science	Nation	Nation (Kerry Election)
15	14	job	lose	4	Social science	Business	Business (Martha)
15	14	job	lose	4	Science & Technology	Science & Technology	Health (Sex)
15	14	mistake	make	4	Art & Entertainment	Art & Entertainment	Movie
15	14	mistake	make	4	Others	Others	Letter
15	14	mistake	make	4	Social science	World	World
15	14	mistake	make	4	Social science	World	World
15	14	mistake	make	4	Social science	Society	Crime
15	14	mistake	make	4	Social science	Nation	Nation
15	14	mistake	make	4	Social science	Nation	Nation
15	14	mistake	make	4	Social science	Nation	Nation (John Kerry)
15	14	mistake	make	4	Social science	Nation	Nation (Kerry Election)
15	14	mistake	make	4	Social science	Nation	Nation (Kerry Election)
15	14	mistake	make	4	Social science	Nation	Nation (Politics)
15	14	mistake	make	4	Social science	Nation	Nation (War)
15	14	mistake	make	4	Social science	Business	Business
15	14	mistake	make	4	Science & Technology	Science & Technology	Health
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music & Theater
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music & Theater
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music & Theater
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Music & Theater
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Television
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Television
15	14	song	write	3	Art & Entertainment	Art & Entertainment	Theater
15	14	song	write	3	Others	Others	Notebook
15	14	song	write	3	Others	Others	Notebook
15	14	song	write	3	Science & Technology	Science & Technology	Health (Sex)
15	14	time	take	4	Art & Entertainment	Art & Entertainment	Movie
15	14	time	take	4	Art & Entertainment	Art & Entertainment	Movie

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
15	14	time	take	4	Art & Entertainment	Art & Entertainment	Movie
15	14	time	take	4	Others	Others	Letter
15	14	time	take	4	Others	Others	Letter
15	14	time	take	4	Social science	Society	Society
15	14	time	take	4	Social science	Nation	Nation
15	14	time	take	4	Social science	Nation	Nation
15	14	time	take	4	Social science	Nation	Nation
15	14	time	take	4	Social science	Business	Business
15	14	time	take	4	Social science	Business	Business
15	14	time	take	4	Social science	Business	Business (Mad Cow)
15	14	time	take	4	Science & Technology	Science & Technology	Health (Sex)
15	14	time	take	4	Science & Technology	Science & Technology	Medicine
15	14	war	fight	4	Art & Entertainment	Art & Entertainment	Book
15	14	war	fight	4	Others	Others	Letter
15	14	war	fight	4	Social science	World	World
15	14	war	fight	4	Social science	World	World
15	14	war	fight	4	Social science	World	World (Iraq)
15	14	war	fight	4	Social science	Nation	Nation
15	14	war	fight	4	Social science	Nation	Nation
15	14	war	fight	4	Social science	Nation	Nation
15	14	war	fight	4	Social science	Nation	Nation (War)
15	14	war	fight	4	Social science	Nation	Nation (War)
15	14	war	fight	4	Social science	Nation	Nation (War)
15	14	war	fight	4	Social science	Nation	Nation (War)
15	14	war	fight	4	Social science	Nation	Nation (War)
15	14	war	fight	4	Science & Technology	Science & Technology	Space
20	13	game	play	4	Art & Entertainment	Art & Entertainment	Movie
20	13	game	play	4	Art & Entertainment	Art & Entertainment	Movie
20	13	game	play	4	Art & Entertainment	Art & Entertainment	Music
20	13	game	play	4	Others	Others	Interview
20	13	game	play	4	Others	Others	Letter
20	13	game	play	4	Others	Others	Notebook
20	13	game	play	4	Social science	Society	Society
20	13	game	play	4	Social science	Nation	Nation
20	13	game	play	4	Social science	Nation	Nation
20	13	game	play	4	Social science	Nation	Nation (John Kerry)
20	13	game	play	4	Social science	Business	Business
20	13	game	play	4	Social science	Business	Business (Martha)
20	13	game	play	4	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
20	13	money	raise	2	Others	Others	Notebook
20	13	money	raise	2	Others	Others	Notebook
20	13	money	raise	2	Social science	World	World
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation
20	13	money	raise	2	Social science	Nation	Nation (Kerry Election)
20	13	money	raise	2	Social science	Nation	Nation (Kerry Election)
20	13	money	raise	2	Social science	Nation	Nation (Politics)
22	12	care	take	3	Others	Others	Letter & Notebook
22	12	care	take	3	Social science	Society	Society
22	12	care	take	3	Social science	Nation	Nation
22	12	care	take	3	Social science	Nation	Nation (John Kerry)
22	12	care	take	3	Social science	Nation	Nation (Politics)
22	12	care	take	3	Social science	Nation	Nation (War)
22	12	care	take	3	Science & Technology	Science & Technology	Health
22	12	care	take	3	Science & Technology	Science & Technology	Health (Sex)
22	12	care	take	3	Science & Technology	Science & Technology	Health (Sex)
22	12	care	take	3	Science & Technology	Science & Technology	Health (Sex)
22	12	care	take	3	Science & Technology	Science & Technology	Space
22	12	care	take	3	Science & Technology	Science & Technology	Time in Depth (Science)
22	12	choice	make	4	Art & Entertainment	Art & Entertainment	Book
22	12	choice	make	4	Art & Entertainment	Art & Entertainment	Book
22	12	choice	make	4	Others	Others	Interview
22	12	choice	make	4	Others	Others	Letter
22	12	choice	make	4	Social science	World	World
22	12	choice	make	4	Social science	World	World
22	12	choice	make	4	Social science	Society	Society
22	12	choice	make	4	Social science	Nation	Nation
22	12	choice	make	4	Social science	Nation	Nation (John Kerry)
22	12	choice	make	4	Social science	Nation	Nation (Politics)
22	12	choice	make	4	Science & Technology	Science & Technology	Science
22	12	choice	make	4	Science & Technology	Science & Technology	Space (Science)
22	12	door	open	2	Social science	World	World
22	12	door	open	2	Social science	World	World

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
22	12	door	open	2	Social science	Nation	Nation
22	12	door	open	2	Social science	Nation	Nation
22	12	door	open	2	Social science	Nation	Nation
22	12	door	open	2	Social science	Nation	Nation
22	12	door	open	2	Social science	Nation	Nation (Kerry Election)
22	12	door	open	2	Social science	Nation	Nation (War)
22	12	door	open	2	Social science	Nation	Nation (War)
22	12	door	open	2	Social science	Nation	Nation (War)
22	12	door	open	2	Social science	Nation	Nation (War)
22	12	door	open	2	Science & Technology	Science & Technology	Health (Sex)
25	11	force	use	2	Others	Others	Interview
25	11	force	use	2	Others	Others	Letter
25	11	force	use	2	Social science	World	World
25	11	force	use	2	Social science	World	World
25	11	force	use	2	Social science	World	World
25	11	force	use	2	Social science	Nation	Nation
25	11	force	use	2	Social science	Nation	Nation (Kerry Election)
25	11	force	use	2	Social science	Nation	Nation (Kerry Election)
25	11	force	use	2	Social science	Nation	Nation (Kerry Election)
25	11	force	use	2	Social science	Nation	Nation (Kerry Election)
25	11	force	use	2	Social science	Nation	Nation (Politics)
25	11	question	answer	3	Art & Entertainment	Art & Entertainment	Book
25	11	question	answer	3	Art & Entertainment	Art & Entertainment	Music
25	11	question	answer	3	Art & Entertainment	Art & Entertainment	Television
25	11	question	answer	3	Others	Others	Essay
25	11	question	answer	3	Others	Others	Letter & Notebook
25	11	question	answer	3	Social science	Nation	Nation
25	11	question	answer	3	Social science	Nation	Nation
25	11	question	answer	3	Social science	Nation	Nation (John Kerry)
25	11	question	answer	3	Social science	Nation	Nation (John Kerry)
25	11	question	answer	3	Social science	Nation	Nation (John Kerry)
25	11	question	answer	3	Social science	Nation	Nation (War)
25	11	step	take	4	Art & Entertainment	Art & Entertainment	Television
25	11	step	take	4	Others	Others	Interview
25	11	step	take	4	Others	Others	Interview
25	11	step	take	4	Others	Others	Letter & Notebook
25	11	step	take	4	Social science	World	World
25	11	step	take	4	Social science	Society	Society
25	11	step	take	4	Social science	Nation	Nation

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
25	11	step	take	4	Social science	Business	Business
25	11	step	take	4	Science & Technology	Science & Technology	Health
25	11	step	take	4	Science & Technology	Science & Technology	Space
25	11	step	take	4	Science & Technology	Science & Technology	Technology
28	10	message	send	4	Art & Entertainment	Art & Entertainment	Television/Music
28	10	message	send	4	Others	Others	Your Time
28	10	message	send	4	Social science	World	World
28	10	message	send	4	Social science	World	World
28	10	message	send	4	Social science	Nation	Nation
28	10	message	send	4	Social science	Nation	Nation
28	10	message	send	4	Social science	Nation	Nation (election)
28	10	message	send	4	Social science	Nation	Nation (election)
28	10	message	send	4	Social science	Nation	Nation (War)
28	10	message	send	4	Science & Technology	Science & Technology	Time in Depth (Science)
28	10	money	make	3	Art & Entertainment	Art & Entertainment	Movie
28	10	money	make	3	Art & Entertainment	Art & Entertainment	Movie
28	10	money	make	3	Social science	Nation	Nation
28	10	money	make	3	Social science	Nation	Nation (John Kerry)
28	10	money	make	3	Social science	Business	Business
28	10	money	make	3	Social science	Business	Business (Car)
28	10	money	make	3	Social science	Business	Business (Mad Cow)
28	10	money	make	3	Social science	Business	Business (Queen of the Sea)
28	10	money	make	3	Science & Technology	Science & Technology	Technology
28	10	money	make	3	Science & Technology	Science & Technology	Time in Depth (Science)
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Art (Movie)
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Art (Movie)
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Book
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Movie
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Movie
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Movie
28	10	movie	make	2	Art & Entertainment	Art & Entertainment	Movie
28	10	movie	make	2	Others	Others	Interview
28	10	movie	make	2	Others	Others	Interview
28	10	movie	make	2	Others	Others	Letter
28	10	risk	take	3	Art & Entertainment	Art & Entertainment	Television
28	10	risk	take	3	Art & Entertainment	Art & Entertainment	Television
28	10	risk	take	3	Others	Others	Architecture & Viewpoint (Baseball)
28	10	risk	take	3	Others	Others	Letter
28	10	risk	take	3	Others	Others	Notebook

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
28	10	risk	take	3	Social science	World	World
28	10	risk	take	3	Social science	World	World
28	10	risk	take	3	Social science	Nation	Nation
28	10	risk	take	3	Social science	Business	Business
28	10	risk	take	3	Social science	Business	Business (Car)
32	9	call	make	2	Others	Others	Your Time
32	9	call	make	2	Others	Others	Your Time
32	9	call	make	2	Social science	World	World (Pakistan)
32	9	call	make	2	Social science	World	World (Pakistan)
32	9	call	make	2	Social science	Society	Society
32	9	call	make	2	Social science	Nation	Nation
32	9	call	make	2	Social science	Nation	Nation (War)
32	9	call	make	2	Social science	Nation	Nation (War)
32	9	call	make	2	Social science	Nation	Nation (War)
32	9	job	get	3	Art & Entertainment	Art & Entertainment	Music
32	9	job	get	3	Others	Others	Essay
32	9	job	get	3	Social science	World	World
32	9	job	get	3	Social science	Society	Education
32	9	job	get	3	Social science	Society	Society
32	9	job	get	3	Social science	Nation	Nation
32	9	job	get	3	Social science	Nation	Nation
32	9	job	get	3	Social science	Business	Business
32	9	job	get	3	Social science	Business	Business
32	9	problem	solve	4	Art & Entertainment	Art & Entertainment	Book
32	9	problem	solve	4	Art & Entertainment	Art & Entertainment	Book
32	9	problem	solve	4	Others	Others	Letter
32	9	problem	solve	4	Social science	World	World
32	9	problem	solve	4	Social science	Nation	Nation
32	9	problem	solve	4	Social science	Nation	Nation (election)
32	9	problem	solve	4	Social science	Nation	Nation (Politics)
32	9	problem	solve	4	Science & Technology	Science & Technology	Technology
32	9	problem	solve	4	Science & Technology	Science & Technology	Technology
32	9	speech	give	2	Art & Entertainment	Art & Entertainment	Television
32	9	speech	give	2	Social science	Society	Society (Gang)
32	9	speech	give	2	Social science	Nation	Nation
32	9	speech	give	2	Social science	Nation	Nation
32	9	speech	give	2	Social science	Nation	Nation
32	9	speech	give	2	Social science	Nation	Nation (Kerry Election)
32	9	speech	give	2	Social science	Nation	Nation (Kerry Election)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
32	9	speech	give	2	Social science	Nation	Nation (Politics)
32	9	speech	give	2	Social science	Nation	Nation (Politics)
36	8	book	write	3	Art & Entertainment	Sports	Sports
36	8	book	write	3	Art & Entertainment	Art & Entertainment	Art (Movie)
36	8	book	write	3	Art & Entertainment	Art & Entertainment	Book
36	8	book	write	3	Art & Entertainment	Art & Entertainment	Book
36	8	book	write	3	Art & Entertainment	Art & Entertainment	Television
36	8	book	write	3	Others	Others	Architecture & Viewpoint (Baseball)
36	8	book	write	3	Others	Others	Notebook
36	8	book	write	3	Science & Technology	Science & Technology	Health (Sex)
36	8	difference	make	4	Art & Entertainment	Art & Entertainment	Book
36	8	difference	make	4	Art & Entertainment	Art & Entertainment	Movie
36	8	difference	make	4	Art & Entertainment	Art & Entertainment	Movie
36	8	difference	make	4	Others	Others	Interview
36	8	difference	make	4	Social science	World	World (Pakistan)
36	8	difference	make	4	Social science	Society	Society
36	8	difference	make	4	Social science	Nation	Nation (War)
36	8	difference	make	4	Science & Technology	Science & Technology	Health (Sex)
36	8	drug	take	3	Others	Others	Letter & From the editor
36	8	drug	take	3	Social science	Nation	Nation (John Kerry)
36	8	drug	take	3	Social science	Nation	Nation (John Kerry)
36	8	drug	take	3	Social science	Business	Business (Martha)
36	8	drug	take	3	Science & Technology	Science & Technology	Health
36	8	drug	take	3	Science & Technology	Science & Technology	Health
36	8	drug	take	3	Science & Technology	Science & Technology	Health
36	8	drug	take	3	Science & Technology	Science & Technology	Medicine
36	8	question	raise	3	Art & Entertainment	Art & Entertainment	Movie & Art
36	8	question	raise	3	Others	Others	Your Time
36	8	question	raise	3	Social science	World	World (Iraq)
36	8	question	raise	3	Social science	Society	Society
36	8	question	raise	3	Social science	Nation	Nation
36	8	question	raise	3	Social science	Nation	Nation (John Kerry)
36	8	question	raise	3	Social science	Business	Business
36	8	question	raise	3	Social science	Business	Business
36	8	sign	show	3	Art & Entertainment	Art & Entertainment	Television
36	8	sign	show	3	Social science	World	World
36	8	sign	show	3	Social science	World	World
36	8	sign	show	3	Social science	Society	Society
36	8	sign	show	3	Social science	Nation	Nation

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
36	8	sign	show	3	Social science	Nation	Nation (Kerry Election)
36	8	sign	show	3	Science & Technology	Science & Technology	Health (Sex)
36	8	sign	show	3	Science & Technology	Science & Technology	Health (Sex)
36	8	thing	say	3	Art & Entertainment	Art & Entertainment	Movie
36	8	thing	say	3	Art & Entertainment	Art & Entertainment	Television
36	8	thing	say	3	Others	Others	Essay
36	8	thing	say	3	Social science	World	World (Iraq)
36	8	thing	say	3	Social science	Nation	Nation
36	8	thing	say	3	Social science	Nation	Nation (John Kerry)
36	8	thing	say	3	Social science	Nation	Nation (War)
36	8	thing	say	3	Social science	Nation	Nation (War)
36	8	thought	have	4	Art & Entertainment	Sports	Sports
36	8	thought	have	4	Others	Others	Your Time
36	8	thought	have	4	Social science	World	World
36	8	thought	have	4	Social science	World	World
36	8	thought	have	4	Social science	World	World (terrorism)
36	8	thought	have	4	Social science	Society	Education
36	8	thought	have	4	Science & Technology	Science & Technology	Health (Sex)
36	8	thought	have	4	Science & Technology	Science & Technology	Medicine
43	7	evidence	find	2	Social science	World	World
43	7	evidence	find	2	Social science	World	World
43	7	evidence	find	2	Social science	World	World (Pakistan)
43	7	evidence	find	2	Social science	World	World (Pakistan)
43	7	evidence	find	2	Social science	Society	Society (Gang)
43	7	evidence	find	2	Science & Technology	Science & Technology	Health
43	7	evidence	find	2	Science & Technology	Science & Technology	Science
43	7	truth	tell	3	Others	Others	Interview
43	7	truth	tell	3	Others	Others	Interview & Letter
43	7	truth	tell	3	Social science	World	World (Iraq)
43	7	truth	tell	3	Social science	Nation	Nation
43	7	truth	tell	3	Social science	Nation	Nation (Kerry Election)
43	7	truth	tell	3	Social science	Business	Business
43	7	truth	tell	3	Science & Technology	Science & Technology	Space
43	7	turn	take	4	Art & Entertainment	Art & Entertainment	Art & Music
43	7	turn	take	4	Art & Entertainment	Art & Entertainment	Movie
43	7	turn	take	4	Others	Others	Essay
43	7	turn	take	4	Others	Others	Your Time
43	7	turn	take	4	Social science	World	World
43	7	turn	take	4	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
43	7	turn	take	4	Science & Technology	Science & Technology	Health (Sex)
46	6	advantage	take	2	Others	Others	Your Time
46	6	advantage	take	2	Others	Others	Your Time
46	6	advantage	take	2	Social science	Nation	Nation (election)
46	6	advantage	take	2	Social science	Nation	Nation (Politics)
46	6	advantage	take	2	Social science	Business	Business (Martha)
46	6	advantage	take	2	Social science	Business	Business (Queen of the Sea)
46	6	business	do	2	Art & Entertainment	Sports	Sports
46	6	business	do	2	Art & Entertainment	Art & Entertainment	Movie
46	6	business	do	2	Art & Entertainment	Art & Entertainment	Movie
46	6	business	do	2	Art & Entertainment	Art & Entertainment	Television
46	6	business	do	2	Social science	Nation	Nation
46	6	business	do	2	Social science	Nation	Nation
46	6	constitution	amend	1	Social science	Nation	Nation
46	6	constitution	amend	1	Social science	Nation	Nation
46	6	constitution	amend	1	Social science	Nation	Nation
46	6	constitution	amend	1	Social science	Nation	Nation
46	6	constitution	amend	1	Social science	Business	Business (Martha)
46	6	constitution	amend	1	Social science	Business	Business (Martha)
46	6	heart	break	3	Art & Entertainment	Art & Entertainment	Art
46	6	heart	break	3	Art & Entertainment	Art & Entertainment	Television
46	6	heart	break	3	Art & Entertainment	Art & Entertainment	Television
46	6	heart	break	3	Others	Others	Letter
46	6	heart	break	3	Social science	Society	Crime
46	6	heart	break	3	Social science	Society	Crime
46	6	language	speak	2	Others	Others	Architecture & Viewpoint (Baseball)
46	6	language	speak	2	Social science	World	World
46	6	language	speak	2	Social science	World	World
46	6	language	speak	2	Social science	Society	Education
46	6	language	speak	2	Social science	Society	Education
46	6	language	speak	2	Social science	Business	Business
46	6	night	spend	2	Others	Others	Essay
46	6	night	spend	2	Others	Others	Essay
46	6	night	spend	2	Social science	Society	Society
46	6	night	spend	2	Social science	Nation	Nation
46	6	night	spend	2	Social science	Nation	Nation (John Kerry)
46	6	night	spend	2	Social science	Business	Business
46	6	peace	keep	2	Others	Others	Essay
46	6	peace	keep	2	Others	Others	Interview & Letter

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
46	6	peace	keep	2	Others	Others	Letter
46	6	peace	keep	2	Others	Others	Letter
46	6	peace	keep	2	Social science	World	World
46	6	peace	keep	2	Social science	World	World
46	6	song	sing	2	Art & Entertainment	Art & Entertainment	Movie
46	6	song	sing	2	Art & Entertainment	Art & Entertainment	Movie & Book
46	6	song	sing	2	Art & Entertainment	Art & Entertainment	Music
46	6	song	sing	2	Art & Entertainment	Art & Entertainment	Music
46	6	song	sing	2	Social science	Society	Crime
46	6	song	sing	2	Social science	Nation	Nation (War)
46	6	weight	lose	2	Art & Entertainment	Art & Entertainment	Television
46	6	weight	lose	2	Science & Technology	Science & Technology	Health
46	6	weight	lose	2	Science & Technology	Science & Technology	Health
46	6	weight	lose	2	Science & Technology	Science & Technology	Health
46	6	weight	lose	2	Science & Technology	Science & Technology	Health
46	6	weight	lose	2	Science & Technology	Science & Technology	Health
55	5	attack	launch	2	Others	Others	Letter
55	5	attack	launch	2	Others	Others	Your Time
55	5	attack	launch	2	Social science	World	World
55	5	attack	launch	2	Social science	World	World (Saddam)
55	5	attack	launch	2	Social science	Nation	Nation
55	5	credit	get	3	Others	Others	Your Time
55	5	credit	get	3	Social science	Nation	Nation
55	5	credit	get	3	Social science	Nation	Nation (War)
55	5	credit	get	3	Social science	Business	Business
55	5	credit	get	3	Science & Technology	Science & Technology	Space
55	5	effort	make	2	Others	Others	Architecture & Viewpoint (Baseball)
55	5	effort	make	2	Social science	Society	Religion
55	5	effort	make	2	Social science	Nation	Nation
55	5	effort	make	2	Social science	Business	Business
55	5	effort	make	2	Social science	Business	Business
55	5	film	make	1	Art & Entertainment	Art & Entertainment	Movie
55	5	film	make	1	Art & Entertainment	Art & Entertainment	Movie
55	5	film	make	1	Art & Entertainment	Art & Entertainment	Movie
55	5	film	make	1	Art & Entertainment	Art & Entertainment	Movie
55	5	film	make	1	Art & Entertainment	Art & Entertainment	Movie & Books
55	5	fortune	make	3	Art & Entertainment	Art & Entertainment	Book
55	5	fortune	make	3	Social science	Nation	Nation
55	5	fortune	make	3	Social science	Nation	Nation

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
55	5	fortune	make	3	Social science	Business	Business
55	5	fortune	make	3	Science & Technology	Science & Technology	Technology
55	5	goal	achieve	3	Others	Others	Letter
55	5	goal	achieve	3	Social science	Nation	Nation
55	5	goal	achieve	3	Social science	Business	Business
55	5	goal	achieve	3	Social science	Business	Business
55	5	goal	achieve	3	Science & Technology	Science & Technology	Health (Sex)
55	5	lesson	take	3	Art & Entertainment	Art & Entertainment	Movie
55	5	lesson	take	3	Social science	Nation	Nation (War)
55	5	lesson	take	3	Social science	Business	Business
55	5	lesson	take	3	Social science	Business	Business (Martha)
55	5	lesson	take	3	Science & Technology	Science & Technology	Time in Depth (Science)
55	5	lesson	learn	2	Art & Entertainment	Art & Entertainment	Art & Music
55	5	lesson	learn	2	Art & Entertainment	Art & Entertainment	Movie
55	5	lesson	learn	2	Social science	Nation	Nation (Kerry Election)
55	5	lesson	learn	2	Social science	Nation	Nation (Kerry Election)
55	5	lesson	learn	2	Social science	Business	Business
55	5	look	take	3	Others	Others	Letter
55	5	look	take	3	Others	Others	Notebook
55	5	look	take	3	Social science	Nation	Nation (election)
55	5	look	take	3	Social science	Business	Business (Mad Cow)
55	5	look	take	3	Science & Technology	Science & Technology	Health (Sex)
55	5	meeting	hold	3	Art & Entertainment	Art & Entertainment	Television
55	5	meeting	hold	3	Others	Others	Letter & Notebook
55	5	meeting	hold	3	Social science	World	World
55	5	meeting	hold	3	Social science	World	World (Saddam)
55	5	meeting	hold	3	Social science	Nation	Nation
55	5	pain	feel	2	Others	Others	Letter & From the editor
55	5	pain	feel	2	Others	Others	Your Time
55	5	pain	feel	2	Social science	Nation	Nation (election)
55	5	pain	feel	2	Social science	Nation	Nation (John Kerry)
55	5	pain	feel	2	Social science	Nation	Nation (Politics)
55	5	part	take	2	Others	Others	Letter & in the Arena
55	5	part	take	2	Social science	World	World
55	5	part	take	2	Social science	World	World (Iraq)
55	5	part	take	2	Social science	Society	Religion
55	5	part	take	2	Social science	Nation	Nation (Kerry Election)
55	5	point	make	2	Art & Entertainment	Art & Entertainment	Movie
55	5	point	make	2	Social science	Society	Religion

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
55	5	point	make	2	Social science	Nation	Nation
55	5	point	make	2	Social science	Nation	Nation (War)
55	5	point	make	2	Social science	Business	Business (Martha)
55	5	position	take	2	Others	Others	Interview
55	5	position	take	2	Others	Others	Letter & in the Arena
55	5	position	take	2	Social science	Nation	Nation (Kerry Election)
55	5	position	take	2	Social science	Business	Business
55	5	position	take	2	Social science	Business	Business (Martha)
55	5	sound	make	2	Art & Entertainment	Art & Entertainment	Movie
55	5	sound	make	2	Art & Entertainment	Art & Entertainment	Music
55	5	sound	make	2	Art & Entertainment	Art & Entertainment	Television
55	5	sound	make	2	Social science	Nation	Nation (War)
55	5	sound	make	2	Social science	Business	Business (Martha)
55	5	terrorism	fight	2	Others	Others	Letter
55	5	terrorism	fight	2	Social science	World	World
55	5	terrorism	fight	2	Social science	Nation	Nation
55	5	terrorism	fight	2	Social science	Nation	Nation (Kerry Election)
55	5	terrorism	fight	2	Social science	Nation	Nation (Kerry Election)
55	5	test	take	1	Social science	Society	Education
55	5	test	take	1	Social science	Society	Education
55	5	test	take	1	Social science	Society	Education
55	5	test	take	1	Social science	Society	Education
55	5	test	take	1	Social science	Society	Education
55	5	track	keep	3	Others	Others	Architecture & Viewpoint (Baseball)
55	5	track	keep	3	Social science	Nation	Nation
55	5	track	keep	3	Science & Technology	Science & Technology	Health
55	5	track	keep	3	Science & Technology	Science & Technology	Health
55	5	track	keep	3	Science & Technology	Science & Technology	Health (Sex)
55	5	visit	make	2	Others	Others	Letter & in the Arena
55	5	visit	make	2	Social science	World	World
55	5	visit	make	2	Social science	World	World (Pakistan)
55	5	visit	make	2	Social science	Nation	Nation
55	5	visit	make	2	Social science	Nation	Nation (Politics)
74	4	action	take	3	Others	Others	Notebook
74	4	action	take	3	Social science	World	World
74	4	action	take	3	Social science	World	World
74	4	action	take	3	Science & Technology	Science & Technology	Technology
74	4	antibiotic	take	1	Others	Others	Your Time
74	4	antibiotic	take	1	Others	Others	Your Time

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
74	4	antibiotic	take	1	Others	Others	Your Time
74	4	antibiotic	take	1	Others	Others	Your Time
74	4	birth	give	1	Social science	Society	Society
74	4	birth	give	1	Social science	Society	Society
74	4	birth	give	1	Social science	Nation	Nation (War)
74	4	birth	give	1	Social science	Nation	Nation (War)
74	4	call	receive	2	Others	Others	Your Time
74	4	call	receive	2	Others	Others	Your Time
74	4	call	receive	2	Social science	World	World
74	4	call	receive	2	Social science	Society	Society
74	4	computer	use	2	Others	Others	Interview & Letter
74	4	computer	use	2	Social science	World	World (Pakistan)
74	4	computer	use	2	Social science	Nation	Nation
74	4	computer	use	2	Social science	Nation	Nation
74	4	cue	take	2	Art & Entertainment	Sports	Sports
74	4	cue	take	2	Art & Entertainment	Art & Entertainment	Television
74	4	cue	take	2	Social science	World	World
74	4	cue	take	2	Social science	Nation	Nation (Politics)
74	4	damage	do	2	Others	Others	Architecture & Viewpoint (Baseball)
74	4	damage	do	2	Others	Others	Letter
74	4	damage	do	2	Social science	World	World
74	4	damage	do	2	Social science	Nation	Nation (John Kerry)
74	4	date	set	2	Social science	World	World
74	4	date	set	2	Social science	Business	Business (Martha)
74	4	date	set	2	Science & Technology	Science & Technology	Health (Sex)
74	4	date	set	2	Science & Technology	Science & Technology	Space
74	4	deal	make	3	Art & Entertainment	Art & Entertainment	Music & Theater
74	4	deal	make	3	Others	Others	Your Time
74	4	deal	make	3	Social science	World	World (Pakistan)
74	4	deal	make	3	Social science	World	World (Pakistan)
74	4	difference	tell	3	Art & Entertainment	Art & Entertainment	Movie
74	4	difference	tell	3	Art & Entertainment	Art & Entertainment	Television
74	4	difference	tell	3	Others	Others	Letter & Notebook
74	4	difference	tell	3	Social science	Nation	Nation (Politics)
74	4	egg	fertilize	1	Science & Technology	Science & Technology	Health (Sex)
74	4	egg	fertilize	1	Science & Technology	Science & Technology	Health (Sex)
74	4	egg	fertilize	1	Science & Technology	Science & Technology	Health (Sex)
74	4	egg	fertilize	1	Science & Technology	Science & Technology	Science
74	4	election	win	1	Social science	World	World

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
74	4	election	win	1	Social science	World	World (Iraq)
74	4	election	win	1	Social science	Nation	Nation (Kerry Election)
74	4	election	win	1	Social science	Nation	Nation (Politics)
74	4	friend	make	1	Social science	Nation	Nation
74	4	friend	make	1	Social science	Nation	Nation (election)
74	4	friend	make	1	Social science	Nation	Nation (War)
74	4	friend	make	1	Social science	Nation	Nation (War)
74	4	hand	hold	2	Social science	World	World (Iraq)
74	4	hand	hold	2	Social science	Nation	Nation (War)
74	4	hand	hold	2	Science & Technology	Science & Technology	Health (Sex)
74	4	hand	hold	2	Science & Technology	Science & Technology	Health (Sex)
74	4	intelligence	gather	1	Social science	World	World
74	4	intelligence	gather	1	Social science	World	World
74	4	intelligence	gather	1	Social science	Nation	Nation
74	4	intelligence	gather	1	Social science	Nation	Nation (War)
74	4	job	take	2	Art & Entertainment	Art & Entertainment	Book
74	4	job	take	2	Social science	Society	Society
74	4	job	take	2	Social science	Nation	Nation
74	4	job	take	2	Social science	Nation	Nation
74	4	law	pass	3	Art & Entertainment	Art & Entertainment	Music & Theater
74	4	law	pass	3	Others	Others	Letter & Notebook
74	4	law	pass	3	Social science	Nation	Nation
74	4	law	pass	3	Social science	Business	Business (Martha)
74	4	letter	send	2	Others	Others	Letter & Notebook
74	4	letter	send	2	Social science	Nation	Nation
74	4	letter	send	2	Social science	Nation	Nation (War)
74	4	letter	send	2	Social science	Business	Business (Martha)
74	4	letter	receive	2	Others	Others	Notebook
74	4	letter	receive	2	Social science	World	World
74	4	letter	receive	2	Social science	Society	Education
74	4	letter	receive	2	Social science	Nation	Nation (War)
74	4	line	draw	2	Art & Entertainment	Art & Entertainment	Theater
74	4	line	draw	2	Social science	World	World
74	4	line	draw	2	Social science	Nation	Nation (Politics)
74	4	line	draw	2	Social science	Business	Business
74	4	message	get	2	Others	Others	Your Time
74	4	message	get	2	Social science	World	World
74	4	message	get	2	Social science	Nation	Nation
74	4	message	get	2	Social science	Business	Business

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
74	4	opportunity	give	2	Social science	Nation	Nation (War)
74	4	opportunity	give	2	Social science	Business	Business (Car)
74	4	opportunity	give	2	Social science	Business	Business (Martha)
74	4	opportunity	give	2	Science & Technology	Science & Technology	Science
74	4	patient	treat	3	Art & Entertainment	Art & Entertainment	Book
74	4	patient	treat	3	Social science	Nation	Nation (election)
74	4	patient	treat	3	Science & Technology	Science & Technology	Health
74	4	patient	treat	3	Science & Technology	Science & Technology	Time in Depth (Science)
74	4	profit	make	2	Social science	World	World
74	4	profit	make	2	Social science	Nation	Nation (John Kerry)
74	4	profit	make	2	Social science	Nation	Nation (John Kerry)
74	4	profit	make	2	Science & Technology	Science & Technology	Technology
74	4	shot	get	2	Social science	Nation	Nation
74	4	shot	get	2	Social science	Nation	Nation
74	4	shot	get	2	Social science	Nation	Nation (War)
74	4	shot	get	2	Science & Technology	Science & Technology	Health
74	4	stand	take	2	Art & Entertainment	Art & Entertainment	Book
74	4	stand	take	2	Social science	Nation	Nation (John Kerry)
74	4	stand	take	2	Social science	Business	Business
74	4	stand	take	2	Social science	Business	Business (Martha)
74	4	tax	pay	2	Others	Others	Letter
74	4	tax	pay	2	Others	Others	Letter
74	4	tax	pay	2	Social science	Nation	Nation
74	4	tax	pay	2	Social science	Nation	Nation (election)
74	4	tax	raise	3	Others	Others	Letter
74	4	tax	raise	3	Social science	Nation	Nation
74	4	tax	raise	3	Social science	Nation	Nation
74	4	tax	raise	3	Science & Technology	Science & Technology	Space
74	4	tax	cut	1	Others	Others	Essay
74	4	tax	cut	1	Others	Others	Essay
74	4	tax	cut	1	Others	Others	Essay
74	4	tax	cut	1	Others	Others	Notebook
74	4	threat	pose	1	Social science	World	World
74	4	threat	pose	1	Social science	Nation	Nation
74	4	threat	pose	1	Social science	Nation	Nation (John Kerry)
74	4	threat	pose	1	Social science	Business	Business
74	4	trip	make	1	Social science	Society	Religion
74	4	trip	make	1	Social science	Society	Society
74	4	trip	make	1	Social science	Nation	Nation

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
74	4	trip	make	1	Social science	Nation	Nation
74	4	truck	drive	3	Art & Entertainment	Art & Entertainment	Television
74	4	truck	drive	3	Others	Others	Interview & Letter
74	4	truck	drive	3	Social science	Society	Society
74	4	truck	drive	3	Social science	Nation	Nation (John Kerry)
74	4	view	take	1	Social science	Society	Religion
74	4	view	take	1	Social science	Society	Society
74	4	view	take	1	Social science	Nation	Nation
74	4	view	take	1	Social science	Business	Business
107	3	advice	seek	3	Others	Others	Letter & From the editor
107	3	advice	seek	3	Social science	Nation	Nation (Politics)
107	3	advice	seek	3	Science & Technology	Science & Technology	Health (Sex)
107	3	amendment	propose	1	Social science	Nation	Nation
107	3	amendment	propose	1	Social science	Nation	Nation
107	3	amendment	propose	1	Social science	Business	Business (Martha)
107	3	award	win	2	Others	Others	Interview
107	3	award	win	2	Social science	Society	Religion
107	3	award	win	2	Social science	Nation	Nation
107	3	break	make	3	Art & Entertainment	Art & Entertainment	Book
107	3	break	make	3	Others	Others	Interview & Letter
107	3	break	make	3	Social science	World	World
107	3	budget	balance	1	Social science	Nation	Nation (election)
107	3	budget	balance	1	Social science	Nation	Nation (election)
107	3	budget	balance	1	Social science	Nation	Nation (John Kerry)
107	3	call	get	2	Art & Entertainment	Art & Entertainment	Movie
107	3	call	get	2	Social science	Nation	Nation
107	3	call	get	2	Social science	Nation	Nation (War)
107	3	challenge	face	1	Social science	World	World (Iraq)
107	3	challenge	face	1	Social science	Nation	Nation
107	3	challenge	face	1	Social science	Nation	Nation (election)
107	3	claim	make	2	Social science	World	World
107	3	claim	make	2	Science & Technology	Science & Technology	Health (Sex)
107	3	claim	make	2	Science & Technology	Science & Technology	Space
107	3	conviction	overturn	1	Social science	World	World
107	3	conviction	overturn	1	Social science	World	World (Pakistan)
107	3	conviction	overturn	1	Science & Technology	Science & Technology	Health (Sex)
107	3	death	cause	3	Others	Others	Letter & Notebook
107	3	death	cause	3	Social science	Nation	Nation (John Kerry)
107	3	death	cause	3	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
107	3	discovery	make	2	Social science	World	World
107	3	discovery	make	2	Social science	World	World (Pakistan)
107	3	discovery	make	2	Science & Technology	Science & Technology	Space
107	3	door	close	2	Others	Others	Letter & in the Arena
107	3	door	close	2	Social science	World	World (Iraq)
107	3	door	close	2	Social science	Business	Business
107	3	duty	perform	2	Others	Others	Letter
107	3	duty	perform	2	Social science	Nation	Nation
107	3	duty	perform	2	Social science	Nation	Nation (War)
107	3	effect	take	2	Others	Others	Your Time
107	3	effect	take	2	Social science	Nation	Nation
107	3	effect	take	2	Social science	Nation	Nation
107	3	eye	close	3	Art & Entertainment	Art & Entertainment	Television
107	3	eye	close	3	Social science	Nation	Nation (John Kerry)
107	3	eye	close	3	Science & Technology	Science & Technology	Health (Sex)
107	3	eye	open	1	Social science	Nation	Nation
107	3	eye	open	1	Social science	Nation	Nation (War)
107	3	eye	open	1	Social science	Business	Business
107	3	faith	put	3	Others	Others	Essay
107	3	faith	put	3	Social science	World	World
107	3	faith	put	3	Science & Technology	Science & Technology	Technology
107	3	fee	charge	1	Social science	Society	Society
107	3	fee	charge	1	Social science	Society	Society
107	3	fee	charge	1	Social science	Business	Business
107	3	game	win	1	Art & Entertainment	Sports	Sports
107	3	game	win	1	Art & Entertainment	Sports	Sports
107	3	game	win	1	Art & Entertainment	Sports	Sports
107	3	hand	shake	3	Art & Entertainment	Art & Entertainment	Television
107	3	hand	shake	3	Social science	World	World
107	3	hand	shake	3	Science & Technology	Science & Technology	Time in Depth (Science)
107	3	harm	do	2	Others	Others	Your Time
107	3	harm	do	2	Science & Technology	Science & Technology	Health
107	3	harm	do	2	Science & Technology	Science & Technology	Health
107	3	head	shake	1	Social science	Society	Crime
107	3	head	shake	1	Social science	Nation	Nation (War)
107	3	head	shake	1	Social science	Nation	Nation (War)
107	3	history	make	2	Art & Entertainment	Art & Entertainment	Book
107	3	history	make	2	Art & Entertainment	Art & Entertainment	Music & Theater
107	3	history	make	2	Social science	Nation	Nation

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
107	3	information	give	2	Social science	Nation	Nation (election)
107	3	information	give	2	Science & Technology	Science & Technology	Health
107	3	information	give	2	Science & Technology	Science & Technology	Time in Depth (Science)
107	3	investment	make	1	Art & Entertainment	Art & Entertainment	Movie
107	3	investment	make	1	Art & Entertainment	Art & Entertainment	Movie
107	3	investment	make	1	Art & Entertainment	Art & Entertainment	Television
107	3	job	find	1	Social science	World	World (terrorism)
107	3	job	find	1	Social science	Society	Society
107	3	job	find	1	Social science	Nation	Nation
107	3	lead	follow	2	Others	Others	Letter
107	3	lead	follow	2	Social science	Nation	Nation (Politics)
107	3	lead	follow	2	Social science	Nation	Nation (War)
107	3	lesson	teach	2	Social science	Nation	Nation (Politics)
107	3	lesson	teach	2	Social science	Nation	Nation (War)
107	3	lesson	teach	2	Science & Technology	Science & Technology	Health
107	3	mouth	open	1	Social science	World	World
107	3	mouth	open	1	Social science	World	World
107	3	mouth	open	1	Social science	Business	Business
107	3	paper	read	3	Others	Others	Letter & in the Arena
107	3	paper	read	3	Social science	Nation	Nation (Politics)
107	3	paper	read	3	Science & Technology	Science & Technology	Science
107	3	paper	publish	2	Social science	World	World (Pakistan)
107	3	paper	publish	2	Social science	World	World (Pakistan)
107	3	paper	publish	2	Science & Technology	Science & Technology	Health
107	3	peace	make	2	Art & Entertainment	Art & Entertainment	Television
107	3	peace	make	2	Social science	Nation	Nation
107	3	peace	make	2	Social science	Nation	Nation (Politics)
107	3	photo	take	2	Others	Others	Letter
107	3	photo	take	2	Social science	Society	Society
107	3	photo	take	2	Social science	Business	Business
107	3	premium	pay	2	Others	Others	Your Time
107	3	premium	pay	2	Social science	Nation	Nation
107	3	premium	pay	2	Social science	Nation	Nation
107	3	price	cut	1	Social science	Nation	Nation (John Kerry)
107	3	price	cut	1	Social science	Business	Business
107	3	price	cut	1	Social science	Business	Business (Car)
107	3	progress	make	1	Social science	World	World
107	3	progress	make	1	Social science	World	World (Iraq)
107	3	progress	make	1	Social science	Nation	Nation (Kerry Election)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
107	3	promise	make	3	Others	Others	Interview & Letter
107	3	promise	make	3	Social science	World	World
107	3	promise	make	3	Science & Technology	Science & Technology	Technology
107	3	promise	keep	2	Others	Others	Interview & Letter
107	3	promise	keep	2	Social science	World	World
107	3	promise	keep	2	Social science	Nation	Nation
107	3	protection	offer	2	Social science	Business	Business (Car)
107	3	protection	offer	2	Social science	Business	Business (Martha)
107	3	protection	offer	2	Science & Technology	Science & Technology	Health (Sex)
107	3	purpose	serve	2	Others	Others	Interview
107	3	purpose	serve	2	Social science	Nation	Nation
107	3	purpose	serve	2	Social science	Nation	Nation (War)
107	3	reason	give	1	Social science	Society	Society
107	3	reason	give	1	Social science	Nation	Nation (Politics)
107	3	reason	give	1	Social science	Business	Business
107	3	record	make	2	Art & Entertainment	Art & Entertainment	Music
107	3	record	make	2	Social science	Nation	Nation
107	3	record	make	2	Social science	Nation	Nation
107	3	requirement	meet	2	Others	Others	Notebook
107	3	requirement	meet	2	Social science	Nation	Nation (John Kerry)
107	3	requirement	meet	2	Social science	Business	Business (Martha)
107	3	respect	show	2	Others	Others	Letter
107	3	respect	show	2	Others	Others	Letter
107	3	respect	show	2	Social science	Society	Society
107	3	reward	offer	2	Others	Others	Your Time
107	3	reward	offer	2	Social science	World	World
107	3	reward	offer	2	Social science	Nation	Nation
107	3	satisfaction	feel	2	Social science	Society	Religion
107	3	satisfaction	feel	2	Science & Technology	Science & Technology	Health
107	3	satisfaction	feel	2	Science & Technology	Science & Technology	Health (Sex)
107	3	secret	keep	2	Social science	Society	Crime
107	3	secret	keep	2	Social science	Nation	Nation (John Kerry)
107	3	secret	keep	2	Science & Technology	Science & Technology	Time in Depth (Science)
107	3	seed	plant	2	Social science	World	World
107	3	seed	plant	2	Social science	Society	Religion
107	3	seed	plant	2	Science & Technology	Science & Technology	Space
107	3	shot	take	2	Social science	World	World (Iraq)
107	3	shot	take	2	Social science	Business	Business
107	3	shot	take	2	Science & Technology	Science & Technology	Health

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
107	3	speech	make	1	Social science	Nation	Nation
107	3	speech	make	1	Social science	Nation	Nation
107	3	speech	make	1	Social science	Nation	Nation (Politics)
107	3	study	conduct	2	Others	Others	Your Time
107	3	study	conduct	2	Science & Technology	Science & Technology	Health (Sex)
107	3	study	conduct	2	Science & Technology	Science & Technology	Health (Sex)
107	3	suicide	commit	2	Social science	World	World (Saddam)
107	3	suicide	commit	2	Social science	Business	Business
107	3	suicide	commit	2	Science & Technology	Science & Technology	Medicine
107	3	suit	follow	2	Social science	Business	Business
107	3	suit	follow	2	Social science	Business	Business
107	3	suit	follow	2	Science & Technology	Science & Technology	Health (Sex)
107	3	tale	tell	2	Art & Entertainment	Art & Entertainment	Movie
107	3	tale	tell	2	Art & Entertainment	Art & Entertainment	Movie
107	3	tale	tell	2	Social science	World	World
107	3	technology	use	2	Social science	World	World (Pakistan)
107	3	technology	use	2	Social science	Nation	Nation (John Kerry)
107	3	technology	use	2	Science & Technology	Science & Technology	Space
107	3	trip	take	2	Others	Others	Letter
107	3	trip	take	2	Others	Others	Your Time
107	3	trip	take	2	Science & Technology	Science & Technology	Health (Sex)
107	3	void	fill	2	Art & Entertainment	Art & Entertainment	Television
107	3	void	fill	2	Social science	World	World (Iraq)
107	3	void	fill	2	Social science	Business	Business (Mad Cow)
107	3	way	make	1	Social science	World	World
107	3	way	make	1	Social science	Nation	Nation (Kerry Election)
107	3	way	make	1	Social science	Business	Business (Martha)
107	3	weekend	spend	1	Social science	Society	Crime
107	3	weekend	spend	1	Social science	Society	Society
107	3	weekend	spend	1	Social science	Nation	Nation (Kerry Election)
166	2	advice	give	1	Social science	World	World (Pakistan)
166	2	advice	give	1	Social science	Nation	Nation (Politics)
166	2	affair	have	1	Social science	Society	Society
166	2	affair	have	1	Social science	Business	Business
166	2	aim	take	2	Others	Others	Letter
166	2	aim	take	2	Social science	World	World (Iraq)
166	2	allegiance	pledge	1	Social science	Nation	Nation
166	2	allegiance	pledge	1	Social science	Nation	Nation (Kerry Election)
166	2	appetite	lose	2	Art & Entertainment	Art & Entertainment	Book

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
166	2	appetite	lose	2	Science & Technology	Science & Technology	Health (Sex)
166	2	approach	take	2	Art & Entertainment	Art & Entertainment	Theater
166	2	approach	take	2	Social science	Business	Business
166	2	arrangement	make	1	Social science	Society	Society
166	2	arrangement	make	1	Social science	Business	Business (Martha)
166	2	attention	focus	2	Social science	Business	Business (Mad Cow)
166	2	attention	focus	2	Science & Technology	Science & Technology	Health (Sex)
166	2	ban	lift	1	Social science	World	World
166	2	ban	lift	1	Social science	World	World (Pakistan)
166	2	benefit	get	1	Social science	Nation	Nation
166	2	benefit	get	1	Social science	Business	Business
166	2	bill	pass	2	Others	Others	Notebook
166	2	bill	pass	2	Social science	Nation	Nation (Politics)
166	2	bill	pay	2	Art & Entertainment	Art & Entertainment	Book
166	2	bill	pay	2	Social science	Business	Business
166	2	blessing	give	2	Art & Entertainment	Art & Entertainment	Theater
166	2	blessing	give	2	Others	Others	Your Time
166	2	border	cross	2	Others	Others	Your Time
166	2	border	cross	2	Social science	Nation	Nation (War)
166	2	bow	take	1	Art & Entertainment	Sports	Sports
166	2	bow	take	1	Art & Entertainment	Art & Entertainment	Art & Book
166	2	button	push	2	Others	Others	Interview
166	2	button	push	2	Social science	Nation	Nation
166	2	car	drive	2	Art & Entertainment	Art & Entertainment	Movie
166	2	car	drive	2	Social science	Business	Business (Car)
166	2	chance	take	2	Art & Entertainment	Art & Entertainment	Movie
166	2	chance	take	2	Social science	Nation	Nation
166	2	clothes	wear	1	Social science	World	World
166	2	clothes	wear	1	Social science	Nation	Nation (Politics)
166	2	comfort	find	1	Art & Entertainment	Art & Entertainment	Book
166	2	comfort	find	1	Art & Entertainment	Art & Entertainment	Movie
166	2	comment	make	2	Art & Entertainment	Art & Entertainment	Movie
166	2	comment	make	2	Social science	Nation	Nation
166	2	contest	win	1	Social science	Nation	Nation
166	2	contest	win	1	Social science	Nation	Nation
166	2	contract	sign	2	Others	Others	Notebook
166	2	contract	sign	2	Science & Technology	Science & Technology	Medicine
166	2	contribution	make	2	Art & Entertainment	Sports	Sports
166	2	contribution	make	2	Social science	Society	Society (Gang)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
166	2	copy	make	1	Art & Entertainment	Art & Entertainment	Movie
166	2	copy	make	1	Art & Entertainment	Art & Entertainment	Movie
166	2	credit	give	2	Others	Others	Interview
166	2	credit	give	2	Social science	Business	Business
166	2	crime	commit	1	Social science	World	World
166	2	crime	commit	1	Social science	World	World
166	2	crowd	draw	1	Social science	World	World
166	2	crowd	draw	1	Social science	Business	Business (Car)
166	2	demand	make	2	Others	Others	Notebook
166	2	demand	make	2	Social science	Nation	Nation
166	2	demand	meet	2	Social science	Business	Business (Mad Cow)
166	2	demand	meet	2	Science & Technology	Science & Technology	Health (Sex)
166	2	detail	give	1	Social science	World	World (Pakistan)
166	2	detail	give	1	Social science	Business	Business (Car)
166	2	dispute	settle	2	Others	Others	Notebook
166	2	dispute	settle	2	Social science	World	World
166	2	document	sign	2	Others	Others	Your Time
166	2	document	sign	2	Social science	Society	Education
166	2	drawer	open	2	Others	Others	Essay
166	2	drawer	open	2	Social science	Nation	Nation (War)
166	2	emotion	show	1	Social science	Nation	Nation (War)
166	2	emotion	show	1	Social science	Business	Business
166	2	error	make	1	Others	Others	Architecture & Viewpoint (Baseball)
166	2	error	make	1	Others	Others	Architecture & Viewpoint (Baseball)
166	2	evidence	give	1	Social science	World	World
166	2	evidence	give	1	Social science	World	World
166	2	expense	cover	1	Social science	Nation	Nation (John Kerry)
166	2	expense	cover	1	Social science	Business	Business
166	2	experiment	conduct	1	Science & Technology	Science & Technology	Science
166	2	experiment	conduct	1	Science & Technology	Science & Technology	Space
166	2	experiment	do	2	Others	Others	Essay
166	2	experiment	do	2	Science & Technology	Science & Technology	Health (Sex)
166	2	family	support	2	Art & Entertainment	Art & Entertainment	Movie & Books
166	2	family	support	2	Social science	Society	Society
166	2	favor	do	2	Art & Entertainment	Art & Entertainment	Television
166	2	favor	do	2	Social science	World	World
166	2	fee	pay	2	Others	Others	Your Time
166	2	fee	pay	2	Social science	Business	Business
166	2	film	see	1	Art & Entertainment	Art & Entertainment	Movie

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
166	2	film	see	1	Art & Entertainment	Art & Entertainment	Movie
166	2	fist	shake	1	Art & Entertainment	Art & Entertainment	Book
166	2	fist	shake	1	Art & Entertainment	Art & Entertainment	Book
166	2	food	eat	2	Others	Others	Your Time
166	2	food	eat	2	Science & Technology	Science & Technology	Health
166	2	form	take	2	Social science	World	World (terrorism)
166	2	form	take	2	Science & Technology	Science & Technology	Health (Sex)
166	2	fortune	spend	2	Social science	World	World (Iraq)
166	2	fortune	spend	2	Science & Technology	Science & Technology	Technology
166	2	funeral	attend	2	Others	Others	Essay
166	2	funeral	attend	2	Social science	World	World
166	2	gift	give	1	Others	Others	Interview
166	2	gift	give	1	Others	Others	Interview
166	2	gun	fire	1	Social science	World	World
166	2	gun	fire	1	Social science	Nation	Nation (Politics)
166	2	hand	take	2	Others	Others	Letter & in the Arena
166	2	hand	take	2	Science & Technology	Science & Technology	Health (Sex)
166	2	hockey	play	2	Art & Entertainment	Sports	Sports
166	2	hockey	play	2	Social science	Nation	Nation (John Kerry)
166	2	husband	leave	2	Art & Entertainment	Art & Entertainment	Book
166	2	husband	leave	2	Science & Technology	Science & Technology	Health (Sex)
166	2	influence	use	1	Social science	Society	Religion
166	2	influence	use	1	Social science	Nation	Nation
166	2	instruction	give	2	Art & Entertainment	Art & Entertainment	Television
166	2	instruction	give	2	Social science	World	World
166	2	issue	raise	1	Social science	Nation	Nation
166	2	issue	raise	1	Social science	Business	Business
166	2	joke	tell	1	Art & Entertainment	Art & Entertainment	Art & Music
166	2	joke	tell	1	Art & Entertainment	Art & Entertainment	Television
166	2	joke	make	2	Social science	Nation	Nation (Politics)
166	2	joke	make	2	Science & Technology	Science & Technology	Health
166	2	ladder	climb	1	Social science	Society	Society
166	2	ladder	climb	1	Social science	Business	Business
166	2	lead	take	1	Social science	World	World
166	2	lead	take	1	Social science	World	World
166	2	line	take	2	Art & Entertainment	Art & Entertainment	Movie
166	2	line	take	2	Social science	Business	Business
166	2	loss	suffer	2	Social science	Business	Business
166	2	loss	suffer	2	Science & Technology	Science & Technology	Health

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
166	2	love	make	2	Art & Entertainment	Art & Entertainment	Television
166	2	love	make	2	Science & Technology	Science & Technology	Health (Sex)
166	2	medication	take	1	Science & Technology	Science & Technology	Health
166	2	medication	take	1	Science & Technology	Science & Technology	Health (Sex)
166	2	message	deliver	1	Social science	World	World
166	2	message	deliver	1	Social science	Nation	Nation (Politics)
166	2	message	leave	1	Social science	Society	Society
166	2	message	leave	1	Social science	Business	Business (Martha)
166	2	missile	launch	1	Social science	World	World
166	2	missile	launch	1	Social science	World	World (Saddam)
166	2	move	make	1	Social science	Nation	Nation
166	2	move	make	1	Social science	Business	Business
166	2	mystery	solve	1	Social science	World	World
166	2	mystery	solve	1	Social science	World	World
166	2	note	take	2	Others	Others	Notebook
166	2	note	take	2	Social science	Nation	Nation (War)
166	2	opportunity	miss	1	Social science	Nation	Nation
166	2	opportunity	miss	1	Social science	Nation	Nation (John Kerry)
166	2	pain	take	2	Art & Entertainment	Art & Entertainment	Television/Music
166	2	pain	take	2	Social science	Nation	Nation (Kerry Election)
166	2	passenger	carry	1	Social science	Business	Business
166	2	passenger	carry	1	Social science	Business	Business
166	2	pattern	establish	2	Art & Entertainment	Art & Entertainment	Music
166	2	pattern	establish	2	Social science	World	World
166	2	poetry	write	2	Social science	Nation	Nation (John Kerry)
166	2	poetry	write	2	Science & Technology	Science & Technology	Health (Sex)
166	2	poll	take	1	Social science	Nation	Nation
166	2	poll	take	1	Social science	Nation	Nation (Politics)
166	2	problem	cause	2	Art & Entertainment	Art & Entertainment	Book
166	2	problem	cause	2	Science & Technology	Science & Technology	Science
166	2	profile	keep	1	Social science	World	World
166	2	profile	keep	1	Social science	Nation	Nation
166	2	promise	break	1	Social science	World	World
166	2	promise	break	1	Social science	Nation	Nation (Kerry Election)
166	2	record	keep	2	Art & Entertainment	Art & Entertainment	Book
166	2	record	keep	2	Science & Technology	Science & Technology	Time in Depth (Science)
166	2	reference	make	1	Social science	Society	Education
166	2	reference	make	1	Social science	Nation	Nation (John Kerry)
166	2	responsibility	accept	2	Others	Others	Interview & Letter

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
166	2	responsibility	accept	2	Social science	Nation	Nation
166	2	result	produce	2	Others	Others	Architecture & Viewpoint (Baseball)
166	2	result	produce	2	Social science	Society	Society (Gang)
166	2	revenge	take	1	Social science	World	World
166	2	revenge	take	1	Social science	World	World
166	2	risk	run	2	Art & Entertainment	Art & Entertainment	Book
166	2	risk	run	2	Others	Others	Essay
166	2	search	conduct	1	Social science	Society	Society (Gang)
166	2	search	conduct	1	Social science	Nation	Nation
166	2	seminar	attend	2	Social science	Society	Religion
166	2	seminar	attend	2	Science & Technology	Science & Technology	Health (Sex)
166	2	sentence	impose	2	Others	Others	Letter & Notebook
166	2	sentence	impose	2	Social science	Society	Religion
166	2	soul	search	1	Social science	Society	Religion
166	2	soul	search	1	Social science	Society	Religion
166	2	statement	make	2	Social science	Business	Business
166	2	statement	make	2	Science & Technology	Science & Technology	Health (Sex)
166	2	stock	sell	1	Social science	Business	Business
166	2	stock	sell	1	Social science	Business	Business (Martha)
166	2	success	make	1	Social science	World	World
166	2	success	make	1	Social science	Society	Religion
166	2	surgery	undergo	1	Science & Technology	Science & Technology	Science
166	2	surgery	undergo	1	Science & Technology	Science & Technology	Science
166	2	task	perform	2	Art & Entertainment	Art & Entertainment	Television
166	2	task	perform	2	Science & Technology	Science & Technology	Health (Sex)
166	2	tea	drink	1	Social science	World	World
166	2	tea	drink	1	Social science	World	World (Pakistan)
166	2	technology	develop	2	Social science	Nation	Nation (election)
166	2	technology	develop	2	Science & Technology	Science & Technology	Health (Sex)
166	2	television	watch	2	Art & Entertainment	Sports	Sports
166	2	television	watch	2	Social science	World	World
166	2	tennis	play	2	Social science	Nation	Nation (Kerry Election)
166	2	tennis	play	2	Science & Technology	Science & Technology	Health (Sex)
166	2	tip	get	2	Others	Others	Notebook
166	2	tip	get	2	Social science	Nation	Nation (Kerry Election)
166	2	toll	take	1	Social science	Nation	Nation (John Kerry)
166	2	toll	take	1	Social science	Business	Business (Martha)
166	2	treatment	get	2	Art & Entertainment	Art & Entertainment	Television
166	2	treatment	get	2	Science & Technology	Science & Technology	Time in Depth (Science)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
166	2	use	make	2	Social science	Society	Religion
166	2	use	make	2	Science & Technology	Science & Technology	Health
166	2	video	make	1	Art & Entertainment	Art & Entertainment	Art & Book
166	2	video	make	1	Art & Entertainment	Art & Entertainment	Music & Theater
166	2	video	watch	2	Art & Entertainment	Art & Entertainment	Music & Theater
166	2	video	watch	2	Social science	Nation	Nation (War)
166	2	weight	gain	1	Social science	Nation	Nation
166	2	weight	gain	1	Science & Technology	Science & Technology	Health
274	1	access	gain	1	Others	Others	Interview
274	1	access	deny	1	Others	Others	Interview
274	1	access	give	1	Social science	World	World
274	1	accusation	deny	1	Social science	Nation	Nation
274	1	act	commit	1	Art & Entertainment	Art & Entertainment	Book
274	1	adjustment	make	1	Social science	Nation	Nation
274	1	advice	offer	1	Social science	World	World (Iraq)
274	1	advice	take	1	Social science	Society	Society
274	1	agreement	reach	1	Social science	World	World
274	1	agreement	sign	1	Social science	Nation	Nation (Kerry Election)
274	1	alarm	sound	1	Social science	World	World
274	1	alarm	set	1	Art & Entertainment	Art & Entertainment	Theater
274	1	allegation	deny	1	Others	Others	Notebook
274	1	alliance	form	1	Social science	World	World (Iraq)
274	1	amnesty	grant	1	Social science	Business	Business
274	1	answer	give	1	Social science	Nation	Nation (War)
274	1	answer	get	1	Social science	Nation	Nation (John Kerry)
274	1	antibiotic	prescribe	1	Others	Others	Your Time
274	1	anxiety	cause	1	Art & Entertainment	Art & Entertainment	Book
274	1	apartment	rent	1	Social science	Society	Religion
274	1	apology	make	1	Social science	Nation	Nation
274	1	applause	win	1	Social science	World	World
274	1	appreciation	show	1	Others	Others	Essay
274	1	approval	give	1	Social science	Society	Society
274	1	arrest	make	1	Social science	Nation	Nation
274	1	assertion	make	1	Others	Others	Letter & in the Arena
274	1	assessment	make	1	Social science	World	World
274	1	assumption	make	1	Social science	Nation	Nation
274	1	atrocity	commit	1	Social science	World	World
274	1	attempt	make	1	Social science	Nation	Nation (John Kerry)
274	1	attention	attract	1	Science & Technology	Science & Technology	Health (Sex)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	attention	draw	1	Social science	Business	Business (Martha)
274	1	baby	have	1	Art & Entertainment	Art & Entertainment	Television
274	1	backing	win	1	Social science	Nation	Nation (John Kerry)
274	1	bag	pack	1	Social science	World	World
274	1	bargain	drive	1	Others	Others	Letter
274	1	basis	form	1	Social science	World	World (Pakistan)
274	1	battery	recharge	1	Social science	Nation	Nation (Politics)
274	1	battle	fight	1	Science & Technology	Science & Technology	Health
274	1	battle	lose	1	Social science	Nation	Nation (Politics)
274	1	battle	win	1	Social science	World	World (Saddam)
274	1	beer	drink	1	Social science	Nation	Nation
274	1	belief	hold	1	Science & Technology	Science & Technology	Space
274	1	bid	make	1	Art & Entertainment	Art & Entertainment	Movie
274	1	blow	strike	1	Art & Entertainment	Art & Entertainment	Music
274	1	bomb	explode	1	Social science	World	World (Iraq)
274	1	bomb	plant	1	Others	Others	Notebook
274	1	book	publish	1	Social science	World	World
274	1	break	take	1	Social science	Nation	Nation (Politics)
274	1	breakdown	suffer	1	Social science	Business	Business
274	1	breath	catch	1	Science & Technology	Science & Technology	Health (Sex)
274	1	breath	hold	1	Social science	World	World
274	1	burden	bear	1	Social science	Nation	Nation (Politics)
274	1	burden	carry	1	Science & Technology	Science & Technology	Science
274	1	calculation	make	1	Social science	Nation	Nation (Kerry Election)
274	1	call	return	1	Social science	Nation	Nation
274	1	campaign	launch	1	Social science	World	World (Pakistan)
274	1	card	play	1	Social science	Business	Business
274	1	cargo	carry	1	Science & Technology	Science & Technology	Space
274	1	champagne	drink	1	Social science	World	World
274	1	change	make	1	Science & Technology	Science & Technology	Health
274	1	chaos	create	1	Others	Others	Interview
274	1	character	play	1	Art & Entertainment	Art & Entertainment	Movie
274	1	charge	take	1	Social science	World	World
274	1	cigarette	smoke	1	Art & Entertainment	Art & Entertainment	Movie
274	1	climax	reach	1	Art & Entertainment	Art & Entertainment	Movie
274	1	clue	provide	1	Social science	World	World (Pakistan)
274	1	coffee	make	1	Art & Entertainment	Art & Entertainment	Movie
274	1	coffee	drink	1	Art & Entertainment	Art & Entertainment	Movie
274	1	comeback	make	1	Social science	Society	Crime

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	comfort	take	1	Social science	Business	Business
274	1	commitment	make	1	Social science	Nation	Nation
274	1	competition	face	1	Social science	Business	Business
274	1	complication	cause	1	Science & Technology	Science & Technology	Health
274	1	concern	express	1	Science & Technology	Science & Technology	Health (Sex)
274	1	conference	hold	1	Social science	Business	Business (Martha)
274	1	conflict	resolve	1	Social science	World	World
274	1	contact	make	1	Social science	Business	Business
274	1	cost	reduce	1	Social science	Nation	Nation (John Kerry)
274	1	courage	have	1	Social science	Business	Business
274	1	course	take	1	Others	Others	Your Time
274	1	crop	yield	1	Social science	World	World
274	1	cut	make	1	Art & Entertainment	Art & Entertainment	Book
274	1	dam	build	1	Social science	Society	Crime
274	1	damage	cause	1	Social science	World	World
274	1	damage	suffer	1	Social science	Business	Business
274	1	damage	repair	1	Social science	World	World
274	1	dance	perform	1	Art & Entertainment	Art & Entertainment	Movie
274	1	danger	face	1	Others	Others	Interview & Letter
274	1	data	process	1	Social science	Nation	Nation
274	1	deadline	set	1	Art & Entertainment	Art & Entertainment	Movie & Books
274	1	debt	pay	1	Social science	Business	Business
274	1	defeat	suffer	1	Others	Others	Letter & Notebook
274	1	deficit	run	1	Others	Others	Essay
274	1	definition	give	1	Others	Others	Letter & Notebook
274	1	demonstration	stage	1	Others	Others	Notebook
274	1	diagnosis	make	1	Science & Technology	Science & Technology	Health
274	1	dilemma	face	1	Art & Entertainment	Art & Entertainment	Theater
274	1	dimension	add	1	Others	Others	Letter
274	1	disease	spread	1	Science & Technology	Science & Technology	Health
274	1	disease	transmit	1	Science & Technology	Science & Technology	Time in Depth (Science)
274	1	distress	cause	1	Science & Technology	Science & Technology	Health (Sex)
274	1	dividend	pay	1	Art & Entertainment	Sports	Sports
274	1	dose	take	1	Science & Technology	Science & Technology	Health
274	1	efficiency	increase	1	Science & Technology	Science & Technology	Health
274	1	egg	fry	1	Art & Entertainment	Art & Entertainment	Book
274	1	enemy	make	1	Social science	Nation	Nation
274	1	envelope	seal	1	Social science	Business	Business
274	1	envoy	send	1	Social science	Society	Religion

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	exam	take	1	Social science	Nation	Nation
274	1	example	follow	1	Science & Technology	Science & Technology	Health
274	1	exception	make	1	Social science	Nation	Nation (Kerry Election)
274	1	exercise	get	1	Science & Technology	Science & Technology	Health
274	1	exercise	do	1	Art & Entertainment	Art & Entertainment	Television
274	1	expectation	exceed	1	Science & Technology	Science & Technology	Space (Science)
274	1	explanation	give	1	Others	Others	Letter
274	1	eye	catch	1	Science & Technology	Science & Technology	Space (Science)
274	1	face	make	1	Art & Entertainment	Art & Entertainment	Movie
274	1	faith	keep	1	Social science	Nation	Nation (Kerry Election)
274	1	fare	pay	1	Social science	Business	Business
274	1	fate	seal	1	Social science	World	World
274	1	fate	meet	1	Science & Technology	Science & Technology	Space (Science)
274	1	feat	perform	1	Social science	Business	Business
274	1	final	reach	1	Art & Entertainment	Art & Entertainment	Television
274	1	fire	set	1	Social science	Society	Society
274	1	fire	start	1	Social science	Nation	Nation
274	1	fire	catch	1	Science & Technology	Science & Technology	Health (Sex)
274	1	fire	cease	1	Social science	World	World (terrorism)
274	1	flight	take	1	Social science	Business	Business (Queen of the Sea)
274	1	friendship	form	1	Art & Entertainment	Art & Entertainment	Movie & Book
274	1	glance	cast	1	Social science	World	World
274	1	glimpse	catch	1	Art & Entertainment	Art & Entertainment	Movie
274	1	golf	play	1	Science & Technology	Science & Technology	Health (Sex)
274	1	gospel	preach	1	Art & Entertainment	Art & Entertainment	Movie
274	1	gratitude	express	1	Science & Technology	Science & Technology	Health (Sex)
274	1	guidance	provide	1	Social science	World	World (Saddam)
274	1	guideline	follow	1	Others	Others	Your Time
274	1	gun	carry	1	Social science	Nation	Nation (Politics)
274	1	hair	cut	1	Art & Entertainment	Art & Entertainment	Movie & Books
274	1	halt	call	1	Others	Others	Your Time
274	1	hearing	hold	1	Social science	Nation	Nation
274	1	hint	give	1	Social science	Nation	Nation (War)
274	1	homework	do	1	Social science	Nation	Nation (Politics)
274	1	honeymoon	spend	1	Art & Entertainment	Sports	Sports
274	1	horn	honk	1	Others	Others	Essay
274	1	idea	get	1	Social science	World	World
274	1	image	improve	1	Others	Others	Letter
274	1	imagination	capture	1	Social science	Nation	Nation (John Kerry)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	impression	make	1	Social science	Nation	Nation (John Kerry)
274	1	improvement	show	1	Social science	Business	Business
274	1	incentive	give	1	Social science	Nation	Nation
274	1	incentive	provide	1	Social science	Nation	Nation (election)
274	1	independence	declare	1	Science & Technology	Science & Technology	Health (Sex)
274	1	infection	prevent	1	Science & Technology	Science & Technology	Health (Sex)
274	1	information	provide	1	Others	Others	Letter
274	1	injection	administer	1	Art & Entertainment	Art & Entertainment	Movie
274	1	insight	give	1	Others	Others	Letter
274	1	inspiration	provide	1	Art & Entertainment	Art & Entertainment	Book
274	1	inspiration	find	1	Social science	Society	Religion
274	1	intention	announce	1	Social science	Society	Society
274	1	intercourse	have	1	Science & Technology	Science & Technology	Health (Sex)
274	1	interview	conduct	1	Social science	Business	Business
274	1	interview	give	1	Social science	Society	Crime
274	1	jet	fly	1	Others	Others	Letter
274	1	journal	publish	1	Others	Others	Your Time
274	1	judgment	make	1	Social science	Nation	Nation
274	1	kick	get	1	Social science	Nation	Nation
274	1	knot	tie	1	Science & Technology	Science & Technology	Health (Sex)
274	1	language	use	1	Science & Technology	Science & Technology	Health (Sex)
274	1	lawsuit	file	1	Social science	Nation	Nation
274	1	leave	take	1	Social science	Nation	Nation (War)
274	1	letter	write	1	Social science	Business	Business
274	1	lifetime	last	1	Science & Technology	Science & Technology	Science
274	1	lift	get	1	Social science	Nation	Nation (Politics)
274	1	living	earn	1	Social science	World	World
274	1	living	make	1	Social science	Society	Crime
274	1	luck	try	1	Art & Entertainment	Art & Entertainment	Television/Music
274	1	mark	make	1	Art & Entertainment	Art & Entertainment	Book
274	1	mask	wear	1	Science & Technology	Science & Technology	Health (Sex)
274	1	measure	take	1	Social science	Nation	Nation (Kerry Election)
274	1	measurement	take	1	Social science	Nation	Nation
274	1	method	use	1	Science & Technology	Science & Technology	Health (Sex)
274	1	morale	boost	1	Others	Others	Letter & From the editor
274	1	mountain	climb	1	Social science	World	World
274	1	murder	commit	1	Social science	World	World
274	1	muscle	flex	1	Social science	World	World
274	1	noise	make	1	Social science	Nation	Nation

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	nomination	win	1	Others	Others	Notebook
274	1	notice	give	1	Social science	World	World
274	1	nut	crack	1	Science & Technology	Science & Technology	Time in Depth (Science)
274	1	oath	take	1	Others	Others	Interview & Letter
274	1	obligation	meet	1	Social science	Nation	Nation
274	1	obstacle	overcome	1	Science & Technology	Science & Technology	Space (Science)
274	1	offer	make	1	Social science	Business	Business
274	1	office	take	1	Others	Others	Interview & Letter
274	1	opinion	give	1	Social science	World	World (Iraq)
274	1	opportunity	offer	1	Social science	Nation	Nation (War)
274	1	order	maintain	1	Social science	World	World (terrorism)
274	1	outrage	express	1	Others	Others	Essay
274	1	pace	keep	1	Social science	Business	Business
274	1	pain	ease	1	Social science	Nation	Nation
274	1	parcel	send	1	Art & Entertainment	Art & Entertainment	Movie
274	1	part	play	1	Others	Others	Letter
274	1	path	follow	1	Others	Others	Your Time
274	1	patience	test	1	Social science	World	World
274	1	payment	receive	1	Social science	Business	Business
274	1	payment	make	1	Social science	Nation	Nation (John Kerry)
274	1	permission	ask	1	Science & Technology	Science & Technology	Health (Sex)
274	1	photograph	take	1	Art & Entertainment	Art & Entertainment	Movie & Art
274	1	picture	paint	1	Art & Entertainment	Art & Entertainment	Book
274	1	pill	take	1	Others	Others	Essay
274	1	plant	water	1	Social science	Society	Religion
274	1	pleasure	get	1	Science & Technology	Science & Technology	Health (Sex)
274	1	plot	uncover	1	Social science	World	World (terrorism)
274	1	poetry	read	1	Art & Entertainment	Art & Entertainment	Music
274	1	popularity	gain	1	Social science	World	World (Iraq)
274	1	portrait	paint	1	Social science	World	World (Iraq)
274	1	position	hold	1	Social science	World	World (Iraq)
274	1	possibility	consider	1	Art & Entertainment	Sports	Sports
274	1	potato	fry	1	Others	Others	Your Time
274	1	praise	win	1	Social science	Nation	Nation
274	1	precedent	establish	1	Social science	World	World
274	1	precedent	set	1	Science & Technology	Science & Technology	Health
274	1	prize	win	1	Others	Others	Notebook
274	1	product	market	1	Social science	Business	Business
274	1	protest	stage	1	Social science	World	World (Iraq)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	publicity	get	1	Social science	World	World (terrorism)
274	1	reception	get	1	Science & Technology	Science & Technology	Environment
274	1	referendum	hold	1	Social science	World	World (Iraq)
274	1	refuge	take	1	Social science	World	World
274	1	regret	express	1	Social science	World	World
274	1	remark	make	1	Social science	Nation	Nation (Politics)
274	1	request	refuse	1	Art & Entertainment	Art & Entertainment	Television
274	1	research	do	1	Science & Technology	Science & Technology	Health
274	1	resemblance	bear	1	Social science	Nation	Nation (John Kerry)
274	1	resentment	feel	1	Social science	Society	Society
274	1	reservation	make	1	Social science	Business	Business (Martha)
274	1	resolution	pass	1	Social science	Nation	Nation (Politics)
274	1	response	get	1	Science & Technology	Science & Technology	Time in Depth (Science)
274	1	responsibility	take	1	Others	Others	Letter & in the Arena
274	1	revenge	exact	1	Art & Entertainment	Art & Entertainment	Movie
274	1	review	receive	1	Art & Entertainment	Art & Entertainment	Movie
274	1	reward	reap	1	Others	Others	Letter
274	1	ride	take	1	Science & Technology	Science & Technology	Space
274	1	rift	cause	1	Art & Entertainment	Art & Entertainment	Book
274	1	rift	heal	1	Social science	Nation	Nation
274	1	root	take	1	Social science	World	World
274	1	rule	make	1	Social science	Nation	Nation (Politics)
274	1	sacrifice	make	1	Social science	Nation	Nation (War)
274	1	scholarship	get	1	Social science	Business	Business (Martha)
274	1	sensation	create	1	Science & Technology	Science & Technology	Health (Sex)
274	1	sentence	pass	1	Social science	World	World (Iraq)
274	1	service	provide	1	Others	Others	Your Time
274	1	settlement	negotiate	1	Others	Others	Interview & Letter
274	1	shape	take	1	Social science	Nation	Nation (War)
274	1	shoe	wear	1	Social science	Nation	Nation (Kerry Election)
274	1	shoulder	shrug	1	Social science	Nation	Nation
274	1	sight	lose	1	Social science	Nation	Nation
274	1	signal	send	1	Social science	Nation	Nation
274	1	skill	develop	1	Others	Others	Essay
274	1	splash	make	1	Others	Others	Your Time
274	1	standard	set	1	Social science	Nation	Nation
274	1	status	give	1	Social science	Nation	Nation
274	1	stock	buy	1	Social science	Business	Business
274	1	stop	make	1	Social science	Nation	Nation (Kerry Election)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	stop	put	1	Social science	Nation	Nation (Politics)
274	1	stroke	suffer	1	Science & Technology	Science & Technology	Health (Sex)
274	1	subject	change	1	Social science	World	World
274	1	success	achieve	1	Social science	Society	Religion
274	1	suggestion	reject	1	Art & Entertainment	Art & Entertainment	Theater
274	1	suicide	attempt	1	Science & Technology	Science & Technology	Medicine
274	1	suitcase	pack	1	Social science	World	World
274	1	support	give	1	Social science	Nation	Nation
274	1	surprise	express	1	Social science	Nation	Nation (War)
274	1	survey	conduct	1	Social science	Society	Society
274	1	suspect	arrest	1	Social science	World	World (Saddam)
274	1	sword	draw	1	Art & Entertainment	Art & Entertainment	Movie
274	1	talk	hold	1	Science & Technology	Science & Technology	Technology
274	1	target	hit	1	Social science	Nation	Nation (War)
274	1	tariff	impose	1	Social science	Nation	Nation (Politics)
274	1	tax	increase	1	Social science	Nation	Nation (Politics)
274	1	technique	develop	1	Social science	Nation	Nation (John Kerry)
274	1	tension	ease	1	Social science	Business	Business
274	1	test	do	1	Science & Technology	Science & Technology	Space
274	1	toilet	use	1	Science & Technology	Science & Technology	Health
274	1	toilet	flush	1	Social science	Nation	Nation (War)
274	1	tooth	brush	1	Social science	Society	Society
274	1	tooth	clench	1	Others	Others	Interview
274	1	topic	discuss	1	Others	Others	Interview
274	1	train	take	1	Art & Entertainment	Art & Entertainment	Movie
274	1	tree	plant	1	Social science	Nation	Nation (War)
274	1	trend	buck	1	Others	Others	Letter & in the Arena
274	1	tribute	pay	1	Others	Others	Essay
274	1	trick	play	1	Social science	World	World
274	1	truce	declare	1	Social science	Nation	Nation
274	1	twist	take	1	Social science	Society	Religion
274	1	vacuum	fill	1	Social science	World	World (Iraq)
274	1	vehicle	drive	1	Social science	Business	Business (Car)
274	1	verse	write	1	Others	Others	Letter & in the Arena
274	1	victory	win	1	Social science	World	World
274	1	visit	pay	1	Social science	World	World (Pakistan)
274	1	vitamin	take	1	Science & Technology	Science & Technology	Health (Sex)
274	1	voice	raise	1	Art & Entertainment	Art & Entertainment	Book
274	1	vote	cast	1	Social science	World	World (Iraq)

Rank	Frequency of collocations	Nodes	Collocates	Coverage	Field 1	Field 2	Field 3
274	1	vote	get	1	Social science	Nation	Nation (Politics)
274	1	watch	keep	1	Social science	World	World
274	1	whistle	blow	1	Social science	Nation	Nation (Kerry Election)
274	1	window	open	1	Social science	Society	Religion
274	1	wine	produce	1	Social science	Nation	Nation (War)
274	1	yacht	sail	1	Social science	Business	Business

Appendix C. Frequency of collocations in the English I textbook corpus

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
accident	cause	001-001	1	1	0	1	0	0	2	2	0	3	1	0	0
action	take	001-001	1	13	1	1	14	0	1	17	0	1	26	1	2
address	give	001-001	0	4	0	0	14	0	2	15	1	0	11	0	1
answer	give	001-001	3	4	0	2	14	0	8	15	2	0	11	0	2
answer	provide	001-001	3	0	0	2	0	0	8	0	0	0	0	0	0
answer	know	001-001	3	11	0	2	22	0	8	22	0	0	12	0	0
answer	get	001-001	3	17	0	2	14	0	8	6	0	0	28	0	0
approach	take	001-001	1	13	0	0	14	0	0	17	0	0	26	0	0
attempt	make	001-001	0	16	0	0	21	0	1	24	0	0	10	0	0
attention	draw	001-001	0	2	0	1	1	0	0	0	0	0	0	0	0
attention	pay	001-001	0	1	0	1	0	0	0	0	0	0	0	0	0
attitude	take	001-001	0	13	0	0	14	0	3	17	0	1	26	0	0
baby	have	001-001	2	28	0	0	16	0	0	45	0	2	44	0	0
ball	play	001-001	0	6	0	1	3	0	1	2	0	1	12	0	0
ball	hit	001-001	0	1	0	1	2	0	1	0	0	1	0	0	0
boat	take	001-001	0	13	0	2	14	0	0	17	0	3	26	0	0
book	write	001-001	5	1	0	4	1	0	20	6	1	0	1	0	1
book	publish	001-001	5	0	0	4	0	0	20	4	0	0	0	0	0
break	make	001-001	3	16	0	0	21	0	0	24	0	1	10	0	0
break	take	001-001	3	13	0	0	14	0	0	17	0	1	26	0	0
bus	catch	001-001	0	1	0	15	3	2	1	2	0	12	1	0	2
bus	take	001-001	0	13	0	15	14	0	1	17	0	12	26	0	0
business	do	001-001	0	28	0	0	19	0	0	24	0	0	37	0	0
call	make	001-001	0	16	0	5	21	1	1	24	1	1	10	0	2
call	get	001-001	0	17	0	5	14	0	1	6	0	1	28	0	0
call	receive	001-001	0	2	0	5	3	0	1	1	0	1	3	0	0
call	return	001-001	0	2	0	5	1	0	1	3	0	1	1	0	0
car	drive	001-001	2	2	0	5	1	0	0	0	0	2	0	0	0
car	park	001-001	2	0	0	5	0	0	0	0	0	2	0	0	0
card	play	001-001	14	6	0	0	3	0	2	2	0	0	12	0	0
care	take	001-001	1	13	0	0	14	0	1	17	1	2	26	1	2
chair	take	001-001	1	13	0	0	14	0	0	17	0	0	26	0	0
challenge	face	001-001	0	0	0	0	0	0	0	0	0	0	0	0	0
challenge	meet	001-001	0	3	0	0	2	0	0	1	0	0	4	0	0
chance	take	001-001	3	13	0	2	14	0	3	17	0	2	26	0	0
change	make	001-001	2	16	0	3	21	0	4	24	0	3	10	0	0
character	play	001-001	0	6	0	1	3	0	5	2	0	1	12	0	0
check	make	001-001	1	16	0	1	21	0	4	24	0	1	10	0	0
choice	make	001-001	1	16	0	3	21	1	0	24	0	2	10	0	1
club	join	001-001	0	0	0	0	1	0	0	1	0	7	1	1	1
computer	use	001-001	0	6	0	0	3	0	2	17	1	0	5	0	1
concern	cause	001-001	0	1	0	0	0	0	0	2	0	0	1	0	0
contact	make	001-001	2	16	0	1	21	0	0	24	0	2	10	0	0
conversation	have	001-001	0	28	0	0	16	0	2	45	0	0	44	0	0
conversation	make	001-001	0	16	0	0	21	0	2	24	0	0	10	0	0
corner	turn	001-001	0	6	0	2	4	0	1	1	0	0	3	0	0
cost	pay	001-001	0	1	0	0	0	0	3	0	0	0	0	0	0
cost	reduce	001-001	0	0	0	0	0	0	3	0	0	0	1	0	0
course	take	001-001	2	13	0	0	14	0	4	17	0	2	26	0	0
course	run	001-001	2	2	0	0	2	0	4	4	0	2	15	0	0
crowd	draw	001-001	1	2	0	0	1	0	0	0	0	1	0	0	0
cut	make	001-001	5	16	0	2	21	0	1	24	0	0	10	0	0
damage	cause	001-001	3	1	0	0	0	0	0	2	0	0	1	0	0
damage	do	001-001	3	28	0	0	19	0	0	24	0	0	37	0	0
damage	suffer	001-001	3	1	0	0	1	0	0	5	0	0	2	0	0
danger	face	001-001	0	0	0	0	0	0	0	0	0	0	0	0	0
date	set	001-001	0	4	0	0	2	0	0	0	0	0	1	0	0
deal	do	001-001	0	28	0	0	19	0	0	24	0	0	37	0	0
deal	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
death	cause	001-001	0	1	0	0	0	0	2	2	0	1	1	0	0
decision	make	001-001	0	16	0	1	21	1	0	24	0	0	10	0	1
decision	take	001-001	0	13	0	1	14	0	0	17	0	0	26	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
demand	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
demand	meet	001-001	0	3	0	0	2	0	0	1	0	0	4	0	0
difference	make	001-001	1	16	0	0	21	0	3	24	0	0	10	0	0
difference	tell	001-001	1	4	0	0	8	0	3	17	0	0	11	0	0
difficulty	make	001-001	1	16	0	0	21	0	0	24	0	0	10	0	0
difficulty	present	001-001	1	1	0	0	0	0	0	1	0	0	0	0	0
difficulty	face	001-001	1	0	0	0	0	0	0	0	0	0	0	0	0
difficulty	have	001-001	1	28	0	0	16	0	0	45	0	0	44	0	0
direction	change	001-001	0	4	0	0	3	0	0	9	0	0	4	0	0
disease	spread	001-001	1	0	0	0	0	0	0	0	0	0	3	0	0
distance	keep	001-001	0	3	0	2	1	0	2	3	0	2	13	0	0
door	close	001-001	1	0	0	2	1	0	1	0	0	2	1	0	0
door	open	001-001	1	3	0	2	2	0	1	1	0	2	6	0	0
effect	have	001-001	5	28	2	0	16	0	0	45	0	0	44	0	2
effect	take	001-001	5	13	0	0	14	0	0	17	0	0	26	0	0
effort	make	001-001	0	16	0	1	21	1	0	24	0	1	10	0	1
escape	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
example	give	001-001	1	4	0	2	14	0	7	15	0	8	11	1	1
example	follow	001-001	1	1	0	2	3	0	7	3	0	8	2	0	0
exercise	take	001-001	0	13	1	0	14	0	0	17	0	0	26	0	1
exercise	get	001-001	0	17	0	0	14	0	0	6	0	0	28	0	0
exercise	do	001-001	0	28	0	0	19	0	0	24	0	0	37	0	0
experience	share	001-001	3	0	0	1	3	0	3	3	0	0	1	0	0
eye	close	001-001	2	0	0	13	1	1	6	0	0	7	1	0	1
eye	open	001-001	7	3	0	13	2	0	6	1	0	7	6	2	2
eye	catch	001-001	7	1	0	13	3	0	6	2	0	7	1	0	0
face	make	001-001	5	16	1	3	21	0	3	24	0	1	10	0	1
fact	face	001-001	0	0	0	2	0	0	10	0	0	3	0	0	0
family	support	001-001	0	0	0	4	0	0	1	0	0	6	0	0	0
farm	work	001-001	0	11	0	0	15	0	3	6	0	0	3	0	0
film	make	001-001	0	16	0	5	21	0	0	24	0	0	10	0	0
film	see	001-001	0	16	0	5	21	0	0	28	0	0	16	0	0
final	reach	001-001	0	1	0	0	0	0	0	4	0	1	2	0	0
fine	pay	001-001	3	1	0	1	0	0	3	0	0	2	0	0	0
fire	set	001-001	0	4	0	0	2	0	1	0	0	0	1	0	0
fire	start	001-001	0	8	0	0	13	0	1	6	0	0	16	0	0
fire	catch	001-001	0	1	0	0	3	0	1	2	0	0	1	0	0
fish	catch	001-001	0	1	0	0	3	0	0	2	0	2	1	0	0
food	eat	001-001	3	6	0	1	1	0	4	5	2	3	5	0	2
force	use	001-001	1	6	0	0	3	0	0	17	0	0	5	0	0
form	take	001-001	1	13	0	1	14	0	3	17	0	1	26	0	0
friend	make	001-001	3	16	0	4	21	1	3	24	0	5	10	1	2
future	plan	001-001	1	0	0	1	0	0	5	1	0	5	0	0	0
game	play	001-001	0	6	0	1	3	0	2	2	0	14	12	3	3
game	win	001-001	0	0	0	1	1	0	2	1	0	14	4	1	1
garden	plant	001-001	2	0	0	1	0	0	0	0	0	0	1	0	0
glass	make	001-001	5	16	0	0	21	0	0	24	0	0	10	0	0
goal	set	001-001	0	4	0	0	2	0	4	0	0	2	1	0	0
goal	achieve	001-001	0	0	0	0	0	0	4	0	0	2	0	0	0
guess	make	001-001	1	16	0	0	21	0	0	24	0	1	10	0	0
gun	fire	001-001	0	0	0	0	0	0	0	0	0	1	0	0	0
gun	carry	001-001	0	2	0	0	4	0	0	2	0	1	1	0	0
hair	cut	001-001	0	7	0	4	2	1	0	1	0	0	0	0	1
hand	shake	001-001	0	0	0	4	0	0	1	0	0	5	0	0	0
hand	take	001-001	0	13	0	4	14	0	1	17	0	5	26	0	0
hand	hold	001-001	0	1	0	4	2	0	1	1	0	5	2	1	1
head	shake	001-001	1	0	0	2	0	0	2	0	0	0	0	0	0
heart	break	001-001	5	5	0	2	1	0	2	0	0	10	1	0	0
history	make	001-001	0	16	0	1	21	0	2	24	0	1	10	0	0
hole	make	001-001	3	16	0	4	21	0	0	24	0	0	10	0	0
hope	raise	001-001	3	0	0	0	2	0	3	2	0	3	3	0	0
horse	ride	001-001	0	0	0	0	0	0	0	3	0	0	3	0	0
husband	leave	001-001	0	6	0	0	10	0	0	5	0	6	1	0	0
idea	get	001-001	0	17	0	2	14	1	2	6	0	3	28	0	1

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
image	improve	001-001	0	0	0	1	0	0	7	0	0	0	0	0	0
influence	use	001-001	1	6	0	0	3	0	4	17	0	0	5	0	0
information	give	001-001	0	4	0	6	14	2	3	15	0	1	11	1	3
information	provide	001-001	0	0	0	6	0	0	3	0	0	1	0	0	0
issue	raise	001-001	0	0	0	1	2	0	1	2	0	0	3	0	0
job	do	001-001	1	28	0	2	19	0	2	24	0	1	37	0	0
job	find	001-001	1	7	0	2	11	0	2	13	0	1	6	0	0
job	get	001-001	1	17	1	2	14	0	2	6	0	1	28	0	1
job	take	001-001	1	13	0	2	14	0	2	17	0	1	26	0	0
job	lose	001-001	1	3	0	2	1	0	2	9	0	1	8	0	0
jump	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
language	use	001-001	0	6	0	1	3	0	2	17	0	7	5	0	0
language	learn	001-001	0	7	0	1	0	0	2	12	0	7	7	2	2
language	speak	001-001	0	0	0	1	0	0	2	0	0	7	0	1	1
law	pass	001-001	0	1	0	1	1	0	0	0	0	0	4	0	0
lead	follow	001-001	1	1	0	0	3	0	0	3	0	0	2	0	0
lead	take	001-001	1	13	0	0	14	0	0	17	0	0	26	0	0
leave	take	001-001	3	13	0	2	14	0	1	17	0	0	26	0	0
leg	cross	001-001	0	0	0	0	0	0	8	1	0	7	0	0	0
letter	write	001-001	0	1	0	1	1	0	0	6	0	2	1	0	0
letter	send	001-001	0	1	0	1	5	0	0	4	0	2	0	0	0
letter	get	001-001	0	17	0	1	14	0	0	6	0	2	28	0	0
letter	receive	001-001	0	2	0	1	3	0	0	1	0	2	3	0	0
letter	open	001-001	0	3	0	1	2	0	0	1	0	2	6	0	0
letter	answer	001-001	0	1	0	1	1	1	0	4	0	2	4	0	1
lie	tell	001-001	0	4	0	0	8	0	0	17	0	0	11	0	0
lift	get	001-001	0	17	0	0	14	0	1	6	0	0	28	0	0
line	draw	001-001	1	2	0	4	1	0	0	0	0	1	0	0	0
line	take	001-001	0	13	0	4	14	0	1	17	1	1	26	0	1
look	take	001-001	14	13	0	11	14	1	11	17	0	6	26	0	1
loss	suffer	001-001	0	1	0	0	1	0	0	5	0	0	2	0	0
loss	cut	001-001	0	7	0	0	2	0	0	1	0	0	0	0	0
love	make	001-001	4	16	0	1	21	0	0	24	0	4	10	0	0
mark	make	001-001	0	16	0	0	21	0	0	24	0	1	10	0	0
matter	discuss	001-001	0	1	0	0	1	0	1	1	0	1	1	0	0
meal	eat	001-001	0	6	0	0	1	0	2	5	0	1	5	0	0
meal	make	001-001	0	16	0	0	21	0	2	24	0	1	10	0	0
measure	take	001-001	0	13	0	0	14	0	0	17	0	0	26	0	0
meeting	call	001-001	0	1	0	0	10	0	0	3	0	2	1	0	0
meeting	hold	001-001	0	1	0	0	2	0	0	1	0	2	2	0	0
mention	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
message	send	001-001	4	1	0	8	5	1	2	4	1	1	0	0	2
message	leave	001-001	4	6	0	8	10	0	2	5	0	1	1	0	0
message	get	001-001	4	17	0	8	14	0	2	6	0	1	28	0	0
message	receive	001-001	4	2	0	8	3	0	2	1	0	1	3	0	0
method	use	001-001	0	6	0	0	3	0	1	17	1	0	5	0	1
mine	work	001-001	0	11	0	0	15	0	3	6	0	6	3	0	0
mistake	make	001-001	2	16	1	1	21	1	2	24	1	0	10	0	3
money	make	001-001	1	16	0	4	21	0	2	24	1	3	10	1	2
money	raise	001-001	1	0	0	4	2	0	2	2	0	3	3	1	1
mountain	climb	001-001	0	0	0	3	0	0	0	0	0	0	0	0	0
mouth	open	001-001	1	3	0	0	2	0	1	1	0	0	6	0	0
move	make	001-001	3	16	0	1	21	0	2	24	0	0	10	0	0
movie	make	001-001	0	16	0	12	21	0	0	24	0	0	10	0	0
need	meet	001-001	7	3	0	6	2	0	7	1	0	5	4	0	0
newspaper	publish	001-001	2	0	0	5	0	0	0	4	0	1	0	0	0
night	spend	001-001	3	0	0	1	2	0	7	3	0	2	1	0	0
note	write	001-001	0	1	0	0	1	0	1	6	0	1	1	0	0
note	take	001-001	0	13	0	0	14	0	1	17	0	1	26	0	0
note	make	001-001	0	16	0	0	21	0	1	24	0	1	10	0	0
notice	give	001-001	1	4	0	0	14	0	0	15	0	0	11	0	0
notice	take	001-001	1	13	0	0	14	0	0	17	0	0	26	0	0
offer	make	001-001	1	16	0	0	21	0	0	24	0	0	10	0	0
office	take	001-001	0	13	0	0	14	0	0	17	0	1	26	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
opinion	give	001-001	0	4	0	0	14	0	0	15	0	0	11	0	0
opinion	hold	001-001	0	1	0	0	2	0	0	1	0	0	2	0	0
opportunity	take	001-001	0	13	0	0	14	0	1	17	0	0	26	0	0
opportunity	give	001-001	0	4	0	0	14	0	1	15	1	0	11	0	1
opportunity	offer	001-001	0	1	0	0	2	0	1	0	0	0	0	0	0
opportunity	miss	001-001	0	2	0	0	1	0	1	1	0	0	0	0	0
order	keep	001-001	1	3	0	2	1	0	4	3	0	0	13	0	0
pain	cause	001-001	0	1	0	0	0	0	0	2	0	0	1	0	0
pain	feel	001-001	0	8	0	0	12	0	0	5	0	3	12	0	0
pain	take	001-001	0	13	0	0	14	0	0	17	0	3	26	0	0
paper	read	001-001	3	9	0	2	7	0	5	10	0	0	2	0	0
paper	publish	001-001	3	0	0	2	0	0	5	4	0	0	0	0	0
part	take	001-001	7	13	0	3	14	1	4	17	0	7	26	0	1
part	play	001-001	7	6	0	3	3	0	4	2	0	7	12	0	0
patient	treat	001-001	0	0	0	0	0	0	4	0	0	0	0	0	0
pattern	set	001-001	0	4	0	0	2	0	2	0	0	0	1	0	0
pattern	follow	001-001	0	1	0	2	3	0	2	3	0	0	2	0	0
peace	make	001-001	0	16	0	0	21	0	1	24	0	2	10	0	0
peace	keep	001-001	0	3	0	0	1	0	1	3	0	2	13	0	0
performance	give	001-001	0	4	0	0	14	0	0	15	0	0	11	0	0
picture	take	001-001	7	13	0	4	14	0	11	17	0	0	26	0	0
picture	paint	001-001	7	2	0	4	0	0	11	0	0	0	1	0	0
place	take	001-001	2	13	0	5	14	0	5	17	0	6	26	1	1
plan	make	001-001	0	16	0	1	21	0	2	24	0	0	10	0	0
plant	grow	001-001	8	5	0	0	3	0	0	3	0	1	2	0	0
point	make	001-001	1	16	0	0	21	1	4	24	0	1	10	0	1
point	get	001-001	1	17	0	2	14	0	4	6	0	1	28	0	0
position	take	001-001	1	13	0	3	14	1	0	17	0	0	26	0	1
position	hold	001-001	1	1	0	3	2	0	0	1	0	0	2	0	0
pressure	increase	001-001	0	0	0	0	0	0	2	2	0	0	1	0	0
price	increase	001-001	0	0	0	0	0	0	1	2	0	0	1	0	0
price	cut	001-001	0	7	0	0	2	0	1	1	0	0	0	0	0
problem	cause	001-001	1	1	0	3	0	0	22	2	0	0	1	0	0
product	market	001-001	1	0	0	0	0	0	0	0	0	0	0	0	0
progress	make	001-001	1	16	0	0	21	0	2	24	0	0	10	0	0
promise	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
promise	keep	001-001	0	3	0	0	1	0	0	3	0	0	13	0	0
promise	break	001-001	0	5	0	0	1	0	0	0	0	0	1	0	0
purpose	serve	001-001	0	1	0	0	1	0	0	0	0	1	1	0	0
question	ask	001-001	3	10	1	0	15	0	3	12	0	4	8	2	3
question	raise	001-001	3	0	0	0	2	0	3	2	0	4	3	0	0
question	answer	001-001	3	0	0	0	0	0	3	0	1	4	0	1	2
reason	give	001-001	2	4	0	2	14	0	4	15	0	4	11	0	0
record	break	001-001	2	5	0	1	1	0	1	0	0	2	1	0	0
record	keep	001-001	2	3	0	0	1	0	1	3	0	2	13	0	0
record	make	001-001	2	16	0	0	21	0	1	24	0	2	10	0	0
reply	send	001-001	0	1	0	0	5	0	1	4	0	0	0	0	0
reply	get	001-001	0	17	0	0	14	0	1	6	0	0	28	0	0
reply	receive	001-001	0	2	0	0	3	0	1	1	0	0	3	0	0
research	do	001-001	0	28	0	0	19	0	0	24	0	0	37	0	0
respect	show	001-001	0	2	0	0	10	0	0	7	0	0	4	0	0
result	produce	001-001	3	1	0	0	4	0	1	0	0	2	2	0	0
result	show	001-001	3	2	0	0	10	0	1	7	0	2	4	0	0
ride	get	001-001	1	17	0	0	14	0	0	6	0	2	28	0	0
ride	take	001-001	1	13	0	0	14	0	0	17	0	2	26	0	0
river	cross	001-001	0	0	0	2	0	0	0	1	0	1	0	0	0
role	play	001-001	0	6	0	0	3	0	0	2	0	3	12	1	1
round	fire	001-001	1	0	0	1	0	0	0	0	0	0	0	0	0
rule	make	001-001	1	16	0	2	21	0	0	24	0	0	10	0	0
school	leave	001-001	22	6	0	12	10	0	5	5	0	11	1	0	0
seat	take	001-001	2	13	0	0	14	0	1	17	0	5	26	1	1
seat	win	001-001	2	0	0	0	1	0	1	1	0	5	4	0	0
seat	lose	001-001	2	3	0	0	1	0	1	9	0	5	8	0	0
secret	keep	001-001	0	3	0	0	1	0	2	3	0	0	13	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
sense	make	001-001	1	16	0	1	21	0	4	24	1	3	10	0	1
sentence	pass	001-001	0	1	0	0	1	0	0	0	0	0	4	0	0
service	provide	001-001	0	0	0	0	0	0	0	0	0	0	0	0	0
shape	take	001-001	0	13	0	0	14	0	3	17	0	1	26	0	0
ship	board	001-001	0	0	0	0	0	0	1	0	0	0	0	0	0
shout	give	001-001	0	4	0	3	14	0	0	15	0	0	11	0	0
sight	catch	001-001	0	1	0	0	3	0	0	2	0	0	1	0	0
sight	lose	001-001	0	3	0	0	1	0	0	9	0	1	8	1	1
sign	show	001-001	0	2	0	0	10	0	0	7	0	0	4	0	0
skill	develop	001-001	1	0	0	1	2	0	2	5	1	0	2	0	1
skill	learn	001-001	1	7	0	1	0	0	2	12	0	0	7	0	0
song	write	001-001	0	1	0	1	1	0	1	6	0	1	1	0	0
song	sing	001-001	0	1	0	1	0	0	1	0	0	1	1	1	1
sound	make	001-001	0	16	0	0	21	0	2	24	0	0	10	0	0
speech	give	001-001	0	4	0	1	14	0	15	15	2	1	11	0	2
speech	make	001-001	0	16	0	1	21	0	15	24	4	1	10	0	4
stand	make	001-001	1	16	0	0	21	0	2	24	0	2	10	0	0
stand	take	001-001	1	13	0	0	14	0	2	17	0	2	26	0	0
standard	set	001-001	0	4	0	0	2	0	2	0	0	0	1	0	0
start	make	001-001	3	16	0	2	21	0	3	24	0	5	10	0	0
step	take	001-001	2	13	0	2	14	1	5	17	2	3	26	1	4
stone	throw	001-001	0	1	0	0	1	0	1	1	0	0	1	0	0
stone	set	001-001	0	4	0	0	2	0	1	0	0	0	1	0	0
stop	make	001-001	3	16	0	2	21	0	0	24	0	5	10	0	0
stop	put	001-001	3	11	0	2	3	0	0	4	0	5	7	0	0
story	tell	001-001	1	4	0	5	8	0	10	17	0	2	11	0	0
stress	cause	001-001	0	1	0	1	0	0	0	2	0	0	1	0	0
strike	call	001-001	0	1	0	0	10	0	0	3	0	0	1	0	0
study	do	001-001	1	28	0	3	19	0	5	24	0	7	37	0	0
subject	change	001-001	0	4	0	0	3	0	3	9	0	0	4	0	0
success	achieve	001-001	1	0	0	0	0	0	0	0	0	1	0	0	0
success	make	001-001	1	16	0	0	21	0	0	24	0	1	10	0	0
support	give	001-001	2	4	0	0	14	0	0	15	0	0	11	0	0
table	set	001-001	4	4	0	0	2	0	1	0	0	0	1	0	0
talk	hold	001-001	0	1	0	2	2	0	16	1	0	9	2	0	0
tea	make	001-001	0	16	0	0	21	0	1	24	0	0	10	0	0
tea	drink	001-001	0	2	0	0	1	0	1	1	0	0	0	0	0
teacher	train	001-001	1	1	0	5	0	0	2	1	0	0	0	0	0
technology	develop	001-001	1	0	0	1	2	0	4	5	0	2	2	0	0
technology	use	001-001	1	6	0	1	3	0	4	17	0	2	5	0	0
television	watch	001-001	0	3	0	0	4	0	0	3	0	0	3	0	0
test	take	001-001	1	13	0	0	14	0	2	17	0	0	26	0	0
test	do	001-001	1	28	0	0	19	0	2	24	0	0	37	0	0
thing	do	001-001	11	28	1	10	19	0	21	24	2	12	37	3	6
thing	say	001-001	11	32	0	10	26	0	21	16	1	12	28	0	1
thought	have	001-001	1	28	0	1	16	0	4	45	0	9	44	1	1
time	take	001-001	12	13	0	21	14	0	19	17	0	24	26	1	1
touch	lose	001-001	0	3	0	2	1	0	0	9	0	1	8	0	0
train	catch	001-001	5	1	1	0	3	0	3	2	0	1	1	0	1
train	take	001-001	5	13	0	0	14	0	3	17	1	1	26	0	1
tree	plant	001-001	9	0	0	1	0	0	4	0	0	0	1	0	0
trip	make	001-001	0	16	0	1	21	0	6	24	0	1	10	0	0
trip	take	001-001	0	13	0	1	14	0	6	17	0	1	26	0	0
trouble	cause	001-001	1	1	0	1	0	0	0	2	0	2	1	0	0
trouble	have	001-001	1	28	0	1	16	0	0	45	0	2	44	2	2
truth	tell	001-001	0	4	0	1	8	0	0	17	0	1	11	0	0
turn	make	001-001	1	16	0	6	21	0	0	24	0	0	10	0	0
turn	take	001-001	1	13	0	6	14	0	0	17	0	0	26	0	0
use	make	001-001	4	16	0	1	21	0	9	24	0	3	10	0	0
value	set	001-001	1	4	0	0	2	0	0	0	0	0	1	0	0
video	make	001-001	0	16	0	0	21	0	0	24	0	0	10	0	0
video	show	001-001	0	2	0	0	10	0	0	7	0	0	4	0	0
video	watch	001-001	0	3	0	0	4	0	0	3	0	0	3	0	0
view	hold	001-001	1	1	0	3	2	0	1	1	0	0	2	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
view	exchange	001-001	1	0	0	3	0	0	1	1	0	0	1	0	0
view	take	001-001	1	13	0	3	14	0	1	17	0	0	26	0	0
visit	make	001-001	0	16	0	0	21	0	3	24	0	1	10	0	0
visit	pay	001-001	0	1	0	0	0	0	3	0	0	1	0	0	0
voice	raise	001-001	0	0	0	9	2	0	4	2	0	0	3	0	0
vote	count	001-001	0	0	0	0	0	0	0	0	0	0	3	0	0
vote	get	001-001	0	17	0	0	14	0	0	6	0	0	28	0	0
walk	take	001-001	2	13	0	2	14	0	0	17	0	1	26	0	0
wall	paint	001-001	4	2	0	2	0	0	0	0	0	2	1	0	0
war	fight	001-001	0	0	0	3	1	0	3	0	0	2	2	0	0
watch	keep	001-001	0	3	0	4	1	0	0	3	0	1	13	0	0
water	drink	001-001	14	2	1	16	1	0	0	1	0	2	0	0	1
way	make	001-001	10	16	0	9	21	0	11	24	0	8	10	0	0
way	find	001-001	10	7	0	9	11	1	11	13	1	8	6	1	3
welcome	give	001-001	0	4	0	0	14	0	1	15	0	0	11	0	0
window	open	001-001	5	3	0	3	2	0	2	1	0	0	6	0	0
wish	make	001-001	9	16	0	0	21	0	1	24	0	2	10	0	0
wood	cut	001-001	2	7	0	2	2	0	1	1	0	0	0	0	0
work	do	001-001	12	28	0	9	19	0	7	24	0	8	37	1	1
concern	express	001-001	0	1	0	0	1	0	0	0	0	0	1	0	0
doubt	express	001-001	0	1	0	0	1	0	3	0	0	0	1	0	0
fear	express	001-001	0	1	0	0	1	0	0	0	0	0	1	0	0
opinion	express	001-001	0	1	0	0	1	0	0	0	0	0	1	0	0
surprise	express	001-001	1	1	0	0	1	0	0	0	0	0	1	0	0
view	express	001-001	1	1	0	3	1	0	1	0	0	0	1	0	0
attention	attract	001-002	0	0	0	1	0	0	0	2	0	0	0	0	0
attention	focus	001-002	0	0	0	1	0	0	0	0	0	0	0	0	0
audience	attract	001-002	0	0	0	4	0	0	8	2	0	0	0	0	0
bag	pack	001-002	0	0	0	5	1	0	1	0	0	0	0	0	0
boat	sail	001-002	0	0	0	2	0	0	0	0	0	3	0	0	0
class	attend	001-002	6	1	0	10	1	0	3	0	0	4	0	0	0
damage	repair	001-002	3	1	1	0	0	0	0	0	0	0	0	0	1
dance	perform	001-002	0	0	0	0	1	0	0	0	0	1	0	0	0
date	fix	001-002	0	0	0	0	0	0	0	0	0	0	0	0	0
difference	settle	001-002	1	0	0	0	0	0	3	1	0	0	0	0	0
door	shut	001-002	1	1	0	2	0	0	1	0	0	2	0	0	0
door	lock	001-002	1	0	0	2	0	0	1	0	0	2	0	0	0
eye	shut	001-002	7	1	0	13	0	0	6	0	0	7	0	0	0
meal	cook	001-002	0	1	0	0	0	0	2	0	0	1	0	0	0
message	deliver	001-002	4	0	0	8	2	1	2	0	0	1	0	0	1
mistake	correct	001-002	2	0	0	1	0	0	2	0	0	0	0	0	0
mouth	shut	001-002	1	1	0	0	0	0	1	0	0	0	0	0	0
order	maintain	001-002	1	0	0	2	0	0	4	0	0	0	0	0	0
pain	ease	001-002	0	0	0	0	0	0	0	0	0	3	0	0	0
pattern	establish	001-002	0	0	0	0	0	0	2	0	0	0	1	0	0
problem	solve	001-002	1	0	0	3	0	0	22	6	1	0	0	0	1
rate	fix	001-002	0	0	0	0	0	0	0	0	0	3	0	0	0
rule	apply	001-002	1	0	0	2	0	0	0	0	0	0	0	0	0
sea	sail	001-002	0	0	0	1	0	0	0	0	0	1	0	0	0
search	conduct	001-002	6	0	0	0	0	0	1	0	0	0	0	0	0
ship	sail	001-002	0	0	0	0	0	0	1	0	0	0	0	0	0
speech	deliver	001-002	0	0	0	1	2	0	15	0	0	1	0	0	0
study	conduct	001-002	1	0	0	3	0	0	5	0	0	7	0	0	0
telephone	tap	001-002	0	0	0	0	0	0	0	0	0	1	0	0	0
vote	cast	001-002	0	0	0	0	0	0	0	0	0	0	0	0	0
demand	reject	001-003	0	1	0	0	0	0	0	0	0	0	0	0	0
hole	drill	001-003	3	0	0	4	0	0	0	0	0	0	0	0	0
paint	spray	001-003	1	0	0	0	0	0	0	0	0	1	0	0	0
rate	lower	001-003	0	1	0	0	0	0	0	1	0	3	0	0	0
sentence	suspend	001-003	0	0	0	0	0	0	0	0	0	0	0	0	0
shoulder	shrug	001-003	0	0	0	4	0	0	0	0	0	0	0	0	0
act	commit	001-004	0	0	0	1	0	0	0	0	0	2	0	0	0
attack	launch	001-004	0	0	0	0	0	0	0	0	0	0	0	0	0
danger	pose	001-004	0	0	0	0	0	0	2	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
difference	resolve	001-004	1	0	0	0	0	0	3	0	0	0	0	0	0
fine	impose	001-004	3	0	0	0	0	0	3	0	0	2	0	0	0
fire	cease	001-004	0	0	0	0	0	0	1	0	0	0	0	0	0
limit	impose	001-004	0	0	0	0	0	0	0	0	0	0	0	0	0
sentence	impose	001-004	0	0	0	0	0	0	0	0	0	0	0	0	0
disease	transmit	001-005	1	0	0	0	0	0	0	0	0	0	0	0	0
hope	dash	001-005	3	0	0	0	0	0	3	0	0	3	0	0	0
influence	exert	001-005	1	0	0	0	0	0	4	0	0	0	0	0	0
plant	water	×	8	0	0	0	0	0	0	0	0	1	0	0	0
access	give	002-001	0	4	0	0	14	0	0	15	0	1	11	0	0
accord	reach	002-001	0	1	0	0	0	0	0	4	0	0	2	0	0
accord	sign	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
account	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
advance	make	002-001	1	16	0	0	21	0	0	24	0	0	10	0	0
advantage	take	002-001	0	13	0	0	14	0	0	17	0	3	26	0	0
advice	give	002-001	0	4	0	0	14	0	1	15	0	1	11	0	0
advice	offer	002-001	0	1	0	0	2	0	1	0	0	1	0	0	0
advice	take	002-001	0	13	0	0	14	0	1	17	0	1	26	0	0
affair	have	002-001	0	28	0	1	16	0	0	45	0	0	44	0	0
agreement	reach	002-001	0	1	0	0	0	0	0	4	0	0	2	0	0
agreement	sign	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
aim	achieve	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
aim	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
anger	feel	002-001	1	8	0	0	12	0	0	5	0	1	12	0	0
appeal	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
appeal	lose	002-001	0	3	0	0	1	0	0	9	0	0	8	0	0
appearance	make	002-001	0	16	0	0	21	0	1	24	0	0	10	0	0
appointment	keep	002-001	0	3	0	0	1	0	0	3	0	0	13	0	0
appointment	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
arrangement	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
arrest	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
article	publish	002-001	0	0	0	2	0	0	1	4	0	0	0	0	0
award	make	002-001	0	16	0	2	21	0	0	24	0	1	10	1	1
award	receive	002-001	0	2	0	2	3	0	0	1	0	1	3	0	0
award	win	002-001	0	0	0	2	1	0	0	1	0	1	4	0	0
balance	strike	002-001	0	0	0	0	0	0	2	0	0	2	0	0	0
balance	keep	002-001	0	3	0	0	1	0	2	3	0	2	13	1	1
ban	lift	002-001	0	0	0	0	0	0	1	1	0	0	1	0	0
basis	form	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
basis	provide	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
bath	take	002-001	0	13	0	0	14	0	0	17	0	1	26	0	0
battle	fight	002-001	0	0	0	1	1	0	0	0	0	0	2	0	0
battle	lose	002-001	0	3	0	1	1	0	0	9	0	0	8	0	0
battle	win	002-001	0	0	0	1	1	1	0	1	0	0	4	0	1
belief	hold	002-001	0	1	0	0	2	0	0	1	0	0	2	0	0
bell	ring	002-001	1	1	0	0	2	0	1	0	0	0	0	0	0
bell	sound	002-001	1	0	0	0	0	0	1	1	0	0	0	0	0
benefit	get	002-001	0	17	0	0	14	0	0	6	0	0	28	0	0
bill	pass	002-001	0	1	0	0	1	0	0	0	0	3	4	1	1
bill	pay	002-001	0	1	0	0	0	0	0	0	0	3	0	0	0
birth	give	002-001	1	4	0	0	14	0	0	15	0	0	11	0	0
bite	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
blame	put	002-001	1	11	0	0	3	0	0	4	0	0	7	0	0
blame	take	002-001	1	13	0	0	14	0	0	17	0	0	26	0	0
blow	strike	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
bomb	plant	002-001	0	0	0	0	0	0	1	0	0	0	1	0	0
bone	break	002-001	0	5	0	0	1	0	0	0	0	0	1	0	0
border	cross	002-001	0	0	0	0	0	0	0	1	0	0	0	0	0
bottle	break	002-001	0	5	0	1	1	0	0	0	0	0	1	0	0
bow	take	002-001	0	13	0	0	14	0	0	17	0	1	26	0	0
breath	draw	002-001	0	2	0	0	1	0	0	0	0	3	0	0	0
breath	take	002-001	0	13	0	0	14	0	0	17	0	3	26	0	0
breath	catch	002-001	0	1	0	0	3	0	0	2	0	3	1	0	0
breath	hold	002-001	0	1	0	0	2	0	0	1	0	3	2	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
bridge	build	002-001	0	1	0	0	1	0	0	1	0	0	1	0	0
bridge	cross	002-001	0	0	0	0	0	0	0	1	0	0	0	0	0
cash	pay	002-001	0	1	0	0	0	0	0	0	0	0	0	0	0
championship	hold	002-001	0	1	0	0	2	0	0	1	0	9	2	0	0
championship	win	002-001	0	0	0	0	1	0	0	1	0	9	4	0	0
charge	take	002-001	0	13	0	0	14	0	0	17	0	1	26	0	0
childhood	spend	002-001	0	0	0	1	2	0	0	3	0	3	1	0	0
cigarette	light	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
claim	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
coffee	make	002-001	0	16	0	1	21	0	0	24	0	0	10	0	0
coffee	drink	002-001	0	2	0	1	1	0	0	1	0	0	0	0	0
comfort	give	002-001	0	4	0	0	14	0	0	15	0	1	11	0	0
comfort	provide	002-001	0	0	0	0	0	0	0	0	0	1	0	0	0
comfort	find	002-001	0	7	0	0	11	0	0	13	0	1	6	0	0
comfort	take	002-001	0	13	0	0	14	0	0	17	0	1	26	0	0
command	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
comment	make	002-001	0	16	0	1	21	0	0	24	0	0	10	0	0
competition	face	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
competition	hold	002-001	0	1	0	0	2	0	0	1	0	0	2	0	0
concept	understand	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
concert	hold	002-001	0	1	0	6	2	0	0	1	0	0	2	0	0
conclusion	draw	002-001	0	2	0	0	1	0	0	0	0	0	0	0	0
conclusion	reach	002-001	0	1	0	0	0	0	0	4	0	0	2	0	0
conference	hold	002-001	0	1	0	0	2	0	0	1	0	0	2	0	0
connection	make	002-001	0	16	0	0	21	0	0	24	0	2	10	0	0
contest	enter	002-001	0	0	0	0	1	0	0	0	0	0	0	0	0
contest	win	002-001	0	0	0	0	1	0	0	1	0	0	4	0	0
contract	sign	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
contribution	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
copy	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
courage	show	002-001	0	2	0	0	10	0	0	7	0	3	4	0	0
courage	have	002-001	0	28	0	0	16	0	0	45	0	3	44	0	0
courage	take	002-001	0	13	0	0	14	0	0	17	0	3	26	0	0
credit	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
credit	offer	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
credit	get	002-001	0	17	0	0	14	0	0	6	0	0	28	0	0
crisis	face	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
crop	grow	002-001	0	5	0	0	3	0	0	3	0	0	2	0	0
crown	win	002-001	0	0	0	0	1	0	0	1	0	0	4	0	0
curtain	draw	002-001	0	2	0	0	1	0	0	0	0	0	0	0	0
data	process	002-001	0	0	0	0	0	0	0	0	0	2	0	0	0
debt	pay	002-001	1	1	0	0	0	0	0	0	0	0	0	0	0
defeat	suffer	002-001	0	1	0	0	1	0	0	5	0	0	2	0	0
desire	feel	002-001	0	8	0	0	12	0	0	5	0	0	12	0	0
destruction	cause	002-001	0	1	0	0	0	0	1	2	0	0	1	0	0
detail	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
diary	keep	002-001	0	3	0	0	1	0	0	3	0	0	13	0	0
discovery	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
drug	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
egg	beat	002-001	1	0	0	0	0	0	1	0	0	4	14	0	0
election	win	002-001	0	0	0	0	1	0	1	1	0	0	4	0	0
emotion	show	002-001	0	2	0	1	10	0	1	7	0	0	4	0	0
emotion	control	002-001	0	0	0	1	0	0	1	1	0	0	0	0	0
enemy	make	002-001	0	16	0	0	21	0	1	24	0	0	10	0	0
engine	start	002-001	2	8	0	0	13	0	0	6	0	0	16	0	0
entrance	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
evidence	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
evidence	find	002-001	0	7	0	0	11	0	0	13	0	0	6	0	0
excitement	cause	002-001	0	1	0	0	0	0	0	2	0	0	1	0	0
excitement	feel	002-001	0	8	0	0	12	0	0	5	0	0	12	0	0
excuse	make	002-001	0	16	0	0	21	0	3	24	0	0	10	0	0
exhibition	hold	002-001	0	1	0	0	2	0	0	1	0	1	2	0	0
experiment	do	002-001	2	28	0	0	19	0	1	24	0	0	37	0	0
explanation	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
explanation	offer	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
factory	close	002-001	1	0	0	0	1	0	2	0	0	0	1	0	0
faith	put	002-001	0	11	0	0	3	0	0	4	0	0	7	0	0
faith	lose	002-001	0	3	0	0	1	0	0	9	0	0	8	0	0
faith	keep	002-001	0	3	0	0	1	0	0	3	0	0	13	0	0
fault	find	002-001	0	7	0	0	11	0	0	13	0	0	6	0	0
favor	do	002-001	0	28	0	0	19	0	0	24	0	0	37	0	0
festival	hold	002-001	0	1	0	0	2	0	0	1	0	0	2	0	0
flat	get	002-001	1	17	0	0	14	0	1	6	0	0	28	0	0
flight	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
fool	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
football	play	002-001	0	6	0	0	3	0	0	2	0	0	12	0	0
friendship	form	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
gap	leave	002-001	0	6	0	0	10	0	0	5	0	0	1	0	0
gap	close	002-001	0	0	0	0	1	0	0	0	0	0	1	0	0
gap	fill	002-001	0	1	0	0	3	0	0	1	0	0	1	0	0
gate	close	002-001	0	0	0	0	1	0	0	0	0	0	1	0	0
gate	open	002-001	0	3	0	0	2	0	0	1	0	0	6	0	0
gesture	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
gift	give	002-001	0	4	0	1	14	0	1	15	0	4	11	0	0
gift	exchange	002-001	0	0	0	1	0	0	1	1	0	4	1	0	0
grade	get	002-001	0	17	0	2	14	0	0	6	0	0	28	0	0
grass	cut	002-001	0	7	0	2	2	0	0	1	0	3	0	0	0
habit	form	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
habit	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
harm	cause	002-001	0	1	0	0	0	0	0	2	0	0	1	0	0
harm	do	002-001	0	28	0	0	19	0	0	24	0	0	37	0	0
height	reach	002-001	0	1	0	0	0	0	0	4	0	0	2	0	0
holiday	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
imagination	lack	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
impact	have	002-001	0	28	0	1	16	0	0	45	0	0	44	0	0
impact	make	002-001	0	16	0	1	21	1	0	24	0	0	10	0	1
impression	create	002-001	1	0	0	1	1	0	0	1	0	0	0	0	0
impression	make	002-001	1	16	1	1	21	0	0	24	0	0	10	0	1
impression	get	002-001	1	17	0	1	14	0	0	6	0	0	28	0	0
injury	suffer	002-001	0	1	0	0	1	0	0	5	0	0	2	0	0
instruction	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
interview	give	002-001	0	4	0	1	14	0	0	15	0	1	11	0	0
joke	tell	002-001	0	4	0	0	8	0	5	17	0	0	11	0	0
joke	make	002-001	0	16	0	0	21	0	5	24	1	0	10	0	1
journey	make	002-001	1	16	0	0	21	0	0	24	0	0	10	0	0
joy	feel	002-001	0	8	0	3	12	0	0	5	0	2	12	0	0
justice	do	002-001	0	28	0	0	19	0	0	24	0	1	37	0	0
kick	get	002-001	0	17	0	0	14	0	0	6	0	0	28	0	0
lecture	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
lesson	give	002-001	10	4	0	12	14	1	12	15	0	11	11	0	1
lesson	take	002-001	10	13	0	12	14	0	12	17	1	11	26	0	1
lesson	learn	002-001	10	7	0	12	0	0	12	12	0	11	7	1	1
lesson	teach	002-001	10	0	0	12	1	0	12	4	0	11	2	0	0
luck	try	002-001	1	8	0	0	3	0	0	11	0	0	4	0	0
magic	work	002-001	1	11	0	0	15	0	0	6	0	0	3	0	0
map	draw	002-001	0	2	0	0	1	0	0	0	0	0	0	0	0
medicine	practise	002-001	1	0	0	0	1	0	1	2	0	4	1	0	0
medicine	take	002-001	1	13	0	0	14	0	1	17	0	4	26	0	0
muscle	pull	002-001	0	4	0	0	2	0	0	0	0	1	0	0	0
noise	make	002-001	0	16	0	0	21	0	0	24	0	2	10	1	1
odd	beat	002-001	0	0	0	0	0	0	0	0	0	0	14	0	0
passage	book	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
passenger	carry	002-001	0	2	0	2	4	0	0	2	0	6	1	0	0
path	follow	002-001	0	1	0	0	3	0	1	3	0	0	2	0	0
photograph	take	002-001	1	13	0	1	14	0	0	17	0	0	26	0	0
pipe	light	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
pleasure	give	002-001	1	4	0	1	14	0	1	15	0	2	11	0	0
pleasure	get	002-001	0	17	0	1	14	0	1	6	0	2	28	1	1

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
poem	write	002-001	1	1	0	0	1	0	0	6	0	0	1	0	0
poem	read	002-001	1	9	0	0	7	0	0	10	0	0	2	0	0
poetry	write	002-001	0	1	0	0	1	0	0	6	0	0	1	0	0
poetry	read	002-001	0	9	0	0	7	0	0	10	0	0	2	0	0
pollution	control	002-001	6	0	0	0	0	0	0	1	0	0	0	0	0
possibility	consider	002-001	0	2	0	0	1	0	0	0	0	0	0	0	0
possibility	raise	002-001	0	0	0	0	2	0	0	2	0	0	3	0	0
pride	take	002-001	5	13	2	0	14	0	2	17	0	0	26	0	2
prisoner	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
prisoner	hold	002-001	0	1	0	0	2	0	0	1	0	0	2	0	0
prize	receive	002-001	0	2	0	0	3	0	0	1	0	1	3	1	1
prize	win	002-001	0	0	0	0	1	0	0	1	0	1	4	0	0
prize	take	002-001	0	13	0	0	14	0	0	17	0	1	26	0	0
production	increase	002-001	0	0	0	0	0	0	1	2	0	0	1	0	0
profit	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
property	buy	002-001	0	2	0	0	4	0	0	5	0	0	1	0	0
property	sell	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
protection	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
protection	offer	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
protection	provide	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
protest	stage	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
purchase	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
reaction	cause	002-001	0	1	0	0	0	0	1	2	0	0	1	0	0
remark	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
repair	do	002-001	2	28	0	0	19	0	0	24	0	0	37	0	0
repair	make	002-001	2	16	0	0	21	0	0	24	0	0	10	0	0
request	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
request	refuse	002-001	0	0	0	0	0	0	0	0	0	0	1	0	0
rescue	attempt	002-001	0	0	0	0	0	0	0	0	0	0	0	0	0
response	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
response	get	002-001	0	17	0	0	14	0	0	6	0	0	28	0	0
response	receive	002-001	0	2	0	0	3	0	0	1	0	0	3	0	0
responsibility	accept	002-001	0	4	0	0	0	0	1	1	0	2	0	0	0
responsibility	take	002-001	0	13	0	0	14	0	1	17	0	2	26	0	0
reward	offer	002-001	0	1	0	0	2	0	1	0	0	0	0	0	0
risk	run	002-001	0	2	0	0	2	0	0	4	0	0	15	0	0
risk	take	002-001	0	13	0	0	14	0	0	17	0	0	26	0	0
roll	call	002-001	0	1	0	0	10	0	1	3	0	0	1	0	0
root	take	002-001	2	13	0	0	14	0	0	17	0	0	26	0	0
route	follow	002-001	1	1	0	0	3	0	0	3	0	1	2	0	0
route	take	002-001	1	13	0	0	14	0	0	17	0	1	26	0	0
seed	plant	002-001	0	0	0	0	0	0	1	0	0	0	1	0	0
sex	have	002-001	0	28	0	0	16	0	0	45	0	0	44	0	0
shock	get	002-001	0	17	0	0	14	0	0	6	0	0	28	0	0
shoe	wear	002-001	0	2	0	0	13	0	0	4	0	1	0	0	0
shot	take	002-001	0	13	0	0	14	0	0	17	0	1	26	0	0
shot	get	002-001	0	17	0	0	14	0	0	6	0	1	28	0	0
sigh	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
signal	give	002-001	0	4	0	1	14	0	0	15	0	0	11	0	0
signal	send	002-001	0	1	0	1	5	0	0	4	0	0	0	0	0
silence	break	002-001	0	5	0	1	1	0	1	0	0	0	1	0	0
soul	save	002-001	0	0	0	0	6	0	0	1	0	0	1	0	0
soul	search	002-001	0	1	0	0	0	0	0	1	0	0	0	0	0
stair	climb	002-001	0	0	0	0	0	0	0	0	0	1	0	0	0
statement	issue	002-001	0	0	0	0	1	0	0	0	0	0	0	0	0
statement	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
status	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
stock	buy	002-001	0	2	0	0	4	0	0	5	0	0	1	0	0
stock	sell	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
suggestion	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
suggestion	offer	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
suit	follow	002-001	0	1	0	0	3	0	0	3	0	0	2	0	0
switch	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
tale	tell	002-001	0	4	0	0	8	0	0	17	0	0	11	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
talent	show	002-001	2	2	0	0	10	0	0	7	0	0	4	0	0
talent	develop	002-001	2	0	0	1	2	0	0	5	0	0	2	0	0
tape	make	002-001	0	16	0	0	21	0	1	24	0	0	10	0	0
tape	play	002-001	0	6	0	0	3	0	1	2	0	0	12	0	0
target	hit	002-001	0	1	0	0	2	0	0	0	0	0	0	0	0
tax	pay	002-001	0	1	0	0	0	0	0	0	0	0	0	0	0
tax	increase	002-001	0	0	0	0	0	0	0	2	0	0	1	0	0
tax	raise	002-001	0	0	0	0	2	0	0	2	0	0	3	0	0
tax	cut	002-001	0	7	0	0	2	0	0	1	0	0	0	0	0
technique	develop	002-001	0	0	0	0	2	0	0	5	0	0	2	0	0
temperature	control	002-001	0	0	0	0	0	0	0	1	0	0	0	0	0
tennis	play	002-001	0	6	0	0	3	0	0	2	0	1	12	1	1
threat	make	002-001	0	16	0	0	21	0	0	24	0	0	10	0	0
throat	clear	002-001	1	1	1	1	2	0	0	1	0	0	4	0	1
throat	cut	002-001	1	7	0	1	2	0	0	1	0	0	0	0	0
ticket	buy	002-001	0	2	0	0	4	0	2	5	0	0	1	0	0
ticket	get	002-001	0	17	0	0	14	0	2	6	0	0	28	0	0
tie	cut	002-001	2	7	0	0	2	0	0	1	0	0	0	0	0
tip	get	002-001	0	17	0	0	14	0	0	6	0	0	28	0	0
tip	give	002-001	0	4	0	0	14	0	0	15	0	0	11	0	0
title	win	002-001	0	0	0	1	1	0	0	1	0	0	4	0	0
tool	use	002-001	3	6	0	0	3	0	0	17	0	0	5	0	0
topic	discuss	002-001	0	1	0	0	1	0	6	1	0	0	1	0	0
trace	leave	002-001	0	6	0	0	10	0	0	5	0	0	1	0	0
trace	show	002-001	0	2	0	0	10	0	0	7	0	0	4	0	0
track	keep	002-001	1	3	0	0	1	0	0	3	0	0	13	0	0
trap	set	002-001	0	4	0	0	2	0	0	0	0	0	1	0	0
treatment	get	002-001	0	17	0	0	14	0	0	6	0	3	28	1	1
treatment	receive	002-001	0	2	0	0	3	0	0	1	0	3	3	0	0
trick	play	002-001	0	6	0	0	3	0	1	2	0	0	12	0	0
truck	drive	002-001	0	2	0	0	1	0	0	0	0	0	0	0	0
urge	feel	002-001	0	8	0	0	12	0	0	5	0	0	12	0	0
vehicle	drive	002-001	0	2	0	0	1	0	0	0	0	0	0	0	0
victory	win	002-001	0	0	0	0	1	0	0	1	0	1	4	0	0
wage	pay	002-001	0	1	0	0	0	0	0	0	0	0	0	0	0
wage	cut	002-001	0	7	0	0	2	0	0	1	0	0	0	0	0
warning	give	002-001	1	4	0	0	14	0	0	15	0	0	11	0	0
warning	issue	002-001	1	0	0	0	1	0	0	0	0	0	0	0	0
warning	receive	002-001	1	2	0	0	3	0	0	1	0	0	3	0	0
weekend	spend	002-001	0	0	0	0	2	0	0	3	0	0	1	0	0
weight	lose	002-001	0	3	0	0	1	0	0	9	0	2	8	0	0
wheel	turn	002-001	0	6	0	0	4	0	0	1	0	0	3	0	0
wine	make	002-001	3	16	0	0	21	0	0	24	0	0	10	0	0
wine	produce	002-001	3	1	0	0	4	0	0	0	0	0	2	0	0
wing	spread	002-001	0	0	0	0	0	0	0	0	0	0	3	0	0
witness	call	002-001	0	1	0	0	10	0	0	3	0	0	1	0	0
wound	receive	002-001	0	2	0	0	3	0	0	1	0	0	3	0	0
anger	express	002-001	1	1	0	0	1	0	0	0	0	1	1	0	0
desire	express	002-001	0	1	0	0	1	0	0	0	0	0	1	0	0
emotion	express	002-001	0	1	0	1	1	0	1	0	0	0	1	0	0
access	gain	002-002	0	1	0	0	1	0	0	0	0	1	0	0	0
access	deny	002-002	0	1	0	0	0	0	0	2	0	1	0	0	0
advantage	gain	002-002	0	1	0	0	1	0	0	0	0	3	0	0	0
advice	seek	002-002	0	0	0	0	0	0	1	0	0	1	0	0	0
birthday	celebrate	002-002	7	0	0	0	0	0	0	0	0	0	0	0	0
blow	deliver	002-002	0	0	0	0	2	0	0	0	0	0	0	0	0
border	guard	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
cigarette	smoke	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
conference	attend	002-002	0	1	0	0	1	0	0	0	0	0	0	0	0
duty	perform	002-002	0	0	0	0	1	0	0	0	0	0	0	0	0
experiment	conduct	002-002	2	0	0	0	0	0	1	0	0	0	0	0	0
function	perform	002-002	0	0	0	0	1	0	0	0	0	0	0	0	0
gap	bridge	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
gaze	fix	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
glance	cast	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
glance	shoot	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
independence	declare	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
intelligence	gather	002-002	0	5	0	0	3	0	6	0	0	0	0	0	0
interview	conduct	002-002	0	0	0	1	0	0	0	0	0	1	0	0	0
kiss	blow	002-002	0	0	0	0	4	0	0	0	0	0	0	0	0
knee	bend	002-002	0	0	0	0	0	0	2	0	0	1	0	0	0
lecture	deliver	002-002	0	0	0	0	2	0	0	0	0	0	0	0	0
lecture	attend	002-002	0	1	0	2	1	1	0	0	0	0	0	0	1
lip	bite	002-002	1	1	0	1	0	0	0	0	0	0	0	0	0
meat	cook	002-002	3	1	0	0	0	0	0	0	0	0	0	0	0
muscle	relax	002-002	0	0	0	0	1	0	0	4	0	1	0	0	0
mystery	solve	002-002	0	0	0	0	0	0	0	6	0	1	0	0	0
nose	blow	002-002	6	0	0	1	4	0	0	0	0	0	0	0	0
pipe	smoke	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
pocket	empty	002-002	2	0	0	0	0	0	0	0	0	0	0	0	0
principle	apply	002-002	0	0	0	0	0	0	0	0	0	2	0	0	0
prisoner	release	002-002	0	0	0	0	1	0	0	0	0	0	1	0	0
prize	award	002-002	0	0	0	0	0	0	0	0	0	1	0	0	0
request	grant	002-002	0	1	0	0	0	0	0	0	0	0	0	0	0
responsibility	assume	002-002	0	0	0	0	0	0	1	0	0	2	0	0	0
shadow	cast	002-002	0	0	0	0	0	0	1	0	0	0	0	0	0
sigh	breathe	002-002	0	0	0	0	0	0	0	0	0	0	9	0	0
spell	cast	002-002	0	0	0	0	0	0	1	0	0	0	0	0	0
survey	conduct	002-002	0	0	0	0	0	0	0	0	0	0	0	0	0
talent	display	002-002	2	0	0	0	0	0	0	0	0	0	0	0	0
task	perform	002-002	0	0	0	0	1	0	0	0	0	0	0	0	0
tie	establish	002-002	2	0	0	0	0	0	0	0	0	0	1	0	0
warning	ignore	002-002	1	0	0	0	0	0	0	0	0	0	0	0	0
weight	gain	002-002	0	1	0	0	1	0	0	0	0	2	0	0	0
appeal	reject	002-003	0	1	0	0	0	0	0	0	0	0	0	0	0
arrest	resist	002-003	0	0	0	0	0	0	0	0	0	0	0	0	0
bomb	explode	002-003	0	0	0	0	0	0	1	0	0	0	1	0	0
egg	boil	002-003	1	0	0	0	0	0	1	0	0	4	0	0	0
egg	fry	002-003	1	0	0	0	0	0	1	0	0	4	0	0	0
grave	dig	002-003	0	1	0	0	2	0	0	0	0	0	0	0	0
imagination	capture	002-003	0	0	0	0	0	0	0	0	0	0	0	0	0
phrase	coin	002-003	1	0	0	0	0	0	0	0	0	0	0	0	0
potato	fry	002-003	0	0	0	0	0	0	0	0	0	0	0	0	0
request	reject	002-003	0	1	0	0	0	0	0	0	0	0	0	0	0
suggestion	reject	002-003	0	1	0	0	0	0	0	0	0	0	0	0	0
title	defend	002-003	0	0	0	1	0	0	0	0	0	0	0	0	0
apple	core	002-004	0	0	0	0	0	0	1	0	0	0	0	0	0
ban	impose	002-004	0	0	0	0	0	0	1	0	0	0	0	0	0
campaign	launch	002-004	1	0	0	1	0	0	1	0	0	0	0	0	0
conflict	resolve	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
cream	whip	002-004	0	0	0	0	0	0	2	0	0	0	0	0	0
crime	commit	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
crisis	resolve	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
crop	yield	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
murder	commit	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
threat	pose	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
wing	clip	002-004	0	0	0	0	0	0	0	0	0	0	0	0	0
medicine	prescribe	002-005	1	0	0	0	0	0	1	0	0	4	0	0	0
wound	inflict	002-005	0	0	0	0	0	0	0	0	0	0	0	0	0
cake	bake	002-006	0	0	0	0	0	0	0	0	0	0	0	0	0
lip	lick	002-006	1	1	1	1	0	0	0	0	0	0	0	0	1
lip	purse	002-006	1	0	0	1	0	0	0	0	0	0	0	0	0
potato	bake	002-006	0	0	0	0	0	0	0	0	0	0	0	0	0
potato	roast	002-006	0	0	0	0	0	0	0	0	0	0	0	0	0
ear	pierce	002-007	0	0	0	0	0	0	1	0	0	0	0	0	0
meat	grill	002-007	3	0	0	0	0	0	0	0	0	0	0	0	0
reward	reap	002-008	0	9	0	0	7	0	1	10	0	0	2	0	0
apple	peel	×	0	0	0	0	0	0	1	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
cow	milk	×	0	0	0	0	0	0	0	0	0	0	0	0	0
egg	fertilize	×	1	0	0	0	0	0	1	0	0	4	0	0	0
grave	desecrate	×	0	0	0	0	0	0	0	0	0	0	0	0	0
knife	sharpen	×	0	0	0	0	0	0	0	0	0	0	0	0	0
muscle	flex	×	0	0	0	0	0	0	0	0	0	1	0	0	0
muscle	tense	×	0	0	0	0	0	0	0	0	0	1	0	0	0
orange	peel	×	0	0	0	0	0	0	7	0	0	0	0	0	0
potato	mash	×	0	0	0	0	0	0	0	0	0	0	0	0	0
seed	sow	×	0	0	0	0	0	0	1	0	0	0	0	0	0
storm	weather	×	0	0	0	0	0	0	0	0	0	0	0	0	0
throat	slit	×	1	0	0	1	0	0	0	0	0	0	0	0	0
warning	heed	×	1	0	0	0	0	0	0	0	0	0	0	0	0
advertisement	place	003-001	0	0	0	0	0	0	0	1	0	0	0	0	0
alarm	raise	003-001	0	0	0	0	2	0	1	2	0	0	3	0	0
alarm	sound	003-001	0	0	0	0	0	0	1	1	0	0	0	0	0
alarm	set	003-001	0	4	0	0	2	0	1	0	0	0	1	0	0
alarm	cause	003-001	0	1	0	0	0	0	1	2	0	0	1	0	0
ambition	achieve	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
anniversary	mark	003-001	0	0	0	0	0	0	0	0	0	0	1	0	0
announcement	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
anxiety	cause	003-001	0	1	0	1	0	0	0	2	0	0	1	0	0
application	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
assignment	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
assumption	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
basket	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
beer	drink	003-001	2	2	0	0	1	0	0	1	0	0	0	0	0
bet	win	003-001	0	0	0	0	1	0	0	1	0	0	4	0	0
bicycle	ride	003-001	3	0	3	0	0	0	0	3	0	0	3	0	3
bike	ride	003-001	0	0	0	0	0	0	0	3	0	0	3	0	0
bond	issue	003-001	0	0	0	0	1	0	0	0	0	0	0	0	0
burden	bear	003-001	0	2	0	0	1	0	0	1	0	0	4	0	0
burden	carry	003-001	0	2	0	0	4	0	0	2	0	0	1	0	0
burden	share	003-001	0	0	0	0	3	0	0	3	0	0	1	0	0
button	press	003-001	4	0	0	0	0	0	0	0	0	1	0	0	0
button	push	003-001	4	2	1	0	0	0	0	1	0	1	1	1	2
cab	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
cab	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
cab	drive	003-001	0	2	0	0	1	0	0	0	0	0	0	0	0
candle	light	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
ceiling	set	003-001	0	4	0	0	2	0	0	0	0	0	1	0	0
celebration	hold	003-001	0	1	0	0	2	0	0	1	0	0	2	0	0
chat	have	003-001	0	28	0	0	16	0	0	45	0	0	44	0	0
clue	find	003-001	0	7	0	0	11	0	0	13	0	0	6	0	0
clue	provide	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
column	write	003-001	0	1	0	0	1	0	0	6	0	0	1	0	0
comparison	draw	003-001	0	2	0	0	1	0	0	0	0	0	0	0	0
comparison	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
comparison	stand	003-001	0	3	0	0	2	0	0	2	0	0	5	0	0
confusion	cause	003-001	0	1	0	0	0	0	0	2	0	0	1	0	0
consequence	face	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
consequence	suffer	003-001	0	1	0	0	1	0	0	5	0	0	2	0	0
craft	learn	003-001	0	7	0	0	0	0	0	12	0	0	7	0	0
declaration	issue	003-001	0	0	0	0	1	0	0	0	0	0	0	0	0
declaration	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
delight	take	003-001	0	13	0	1	14	0	0	17	0	0	26	0	0
demonstration	stage	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
description	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
destination	reach	003-001	0	1	0	0	0	0	0	4	0	0	2	0	0
diamond	set	003-001	0	4	0	0	2	0	0	0	0	0	1	0	0
divorce	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
document	sign	003-001	0	0	0	0	0	0	0	0	0	1	0	0	0
drawer	open	003-001	0	3	0	0	2	0	0	1	0	0	6	0	0
drum	beat	003-001	0	0	0	0	0	0	0	0	0	0	14	0	0
efficiency	improve	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
efficiency	increase	003-001	0	0	0	0	0	0	0	2	0	0	1	0	0
emphasis	place	003-001	0	0	0	0	0	0	0	1	0	0	0	0	0
emphasis	put	003-001	0	11	0	0	3	0	0	4	0	0	7	0	0
entertainment	provide	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
envelope	address	003-001	1	0	0	0	0	0	0	0	0	0	0	0	0
equality	achieve	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
error	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
essay	write	003-001	0	1	0	0	1	0	1	6	0	0	1	0	0
exam	sit	003-001	0	6	0	0	0	0	0	3	0	0	2	0	0
exam	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
exam	fail	003-001	0	0	0	0	0	0	0	3	0	0	0	0	0
exam	pass	003-001	0	1	0	0	1	0	0	0	0	0	4	0	0
exception	make	003-001	0	16	0	0	21	0	0	24	0	1	10	0	0
expedition	lead	003-001	0	3	0	0	0	0	0	0	0	0	0	0	0
fate	decide	003-001	0	4	0	0	1	0	0	2	0	0	7	0	0
fate	meet	003-001	0	3	0	0	2	0	0	1	0	0	4	0	0
fate	suffer	003-001	0	1	0	0	1	0	0	5	0	0	2	0	0
fence	build	003-001	0	1	0	0	1	0	0	1	0	0	1	0	0
file	open	003-001	0	3	0	0	2	0	0	1	0	0	6	0	0
file	keep	003-001	0	3	0	0	1	0	0	3	0	0	13	0	0
file	close	003-001	0	0	0	0	1	0	0	0	0	0	1	0	0
fist	shake	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
flag	fly	003-001	0	0	0	0	0	0	0	1	0	0	1	0	0
flag	raise	003-001	0	0	0	0	2	0	0	2	0	0	3	0	0
flag	wave	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
fortune	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
fortune	spend	003-001	0	0	0	0	2	0	0	3	0	0	1	0	0
fortune	lose	003-001	0	3	0	0	1	0	0	9	0	0	8	0	0
fortune	tell	003-001	0	4	0	0	8	0	0	17	0	0	11	0	0
foundation	lay	003-001	0	0	0	0	0	0	0	2	0	0	0	0	0
fur	wear	003-001	0	2	0	0	13	0	0	4	0	0	0	0	0
gear	change	003-001	0	4	0	0	3	0	0	9	0	0	4	0	0
glory	bring	003-001	0	5	0	0	5	0	0	4	0	0	3	0	0
golf	play	003-001	0	6	0	0	3	0	0	2	0	0	12	0	0
grip	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
grip	lose	003-001	0	3	0	0	1	0	0	9	0	0	8	0	0
happiness	bring	003-001	0	5	0	0	5	0	0	4	0	1	3	0	0
hint	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
hint	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
horn	sound	003-001	0	0	0	0	0	0	0	1	0	0	0	0	0
illusion	create	003-001	0	0	0	0	1	0	0	1	0	0	0	0	0
illusion	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
improvement	show	003-001	1	2	0	0	10	0	0	7	0	1	4	0	0
instinct	follow	003-001	0	1	0	0	3	0	0	3	0	0	2	0	0
interpretation	put	003-001	0	11	0	0	3	0	0	4	0	0	7	0	0
invitation	issue	003-001	0	0	0	0	1	0	0	0	0	0	0	0	0
invitation	send	003-001	0	1	0	0	5	0	0	4	0	0	0	0	0
invitation	receive	003-001	0	2	0	0	3	0	0	1	0	0	3	0	0
invitation	accept	003-001	0	4	0	0	0	0	0	1	0	0	0	0	0
jet	fly	003-001	0	0	0	0	0	0	0	1	0	0	1	0	0
judgment	exercise	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
judgment	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
judgment	pass	003-001	0	1	0	0	1	0	0	0	0	0	4	0	0
ladder	climb	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
lamp	light	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
landing	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
lifetime	last	003-001	0	0	0	0	0	0	0	0	0	1	1	0	0
load	carry	003-001	0	2	0	0	4	0	0	2	0	0	1	0	0
mask	wear	003-001	0	2	0	0	13	0	0	4	0	0	0	0	0
medal	get	003-001	1	17	0	0	14	0	0	6	0	0	28	0	0
medal	win	003-001	1	0	0	0	1	0	0	1	0	0	4	0	0
mess	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
motion	pass	003-001	0	1	0	0	1	0	0	0	0	0	4	0	0
nest	build	003-001	0	1	0	0	1	0	0	1	0	1	1	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
nightmare	have	003-001	0	28	0	0	16	0	0	45	0	0	44	0	0
nonsense	talk	003-001	0	0	0	0	0	0	1	0	0	0	0	0	0
pace	set	003-001	1	4	1	0	2	0	1	0	0	1	1	0	1
pace	keep	003-001	1	3	0	0	1	0	1	3	0	1	13	0	0
panic	cause	003-001	0	1	0	0	0	0	0	2	0	0	1	0	0
peak	reach	003-001	0	1	0	0	0	0	0	4	0	0	2	0	0
permission	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
permission	refuse	003-001	0	0	0	0	0	0	0	0	0	0	1	0	0
permission	ask	003-001	0	10	0	0	15	0	0	12	0	0	8	0	0
phase	enter	003-001	0	0	0	0	1	0	0	0	0	0	0	0	0
photo	take	003-001	1	13	0	28	14	0	0	17	0	14	26	4	4
portrait	paint	003-001	0	2	0	0	0	0	0	0	0	0	1	0	0
possession	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
praise	win	003-001	0	0	0	0	1	0	0	1	0	0	4	0	0
prayer	offer	003-001	1	1	0	0	2	0	0	0	0	0	0	0	0
prayer	say	003-001	1	32	0	0	26	0	0	16	0	0	28	0	0
prayer	answer	003-001	1	1	0	0	1	0	0	4	0	0	4	0	0
preference	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
preparation	make	003-001	1	16	0	0	21	0	0	24	0	0	10	0	0
presentation	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
presentation	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
priority	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
priority	give	003-001	0	4	0	0	14	0	0	15	0	0	11	0	0
recipe	follow	003-001	0	1	0	0	3	0	0	3	0	0	2	0	0
recognition	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
reservation	make	003-001	0	16	0	0	21	0	2	24	2	0	10	0	2
resistance	offer	003-001	0	1	0	0	2	0	0	0	0	0	0	0	0
rope	pull	003-001	0	4	0	0	2	0	0	0	0	0	0	0	0
routine	change	003-001	0	4	0	0	3	0	0	9	0	0	4	0	0
rumor	spread	003-001	0	0	0	0	0	0	0	0	0	0	3	0	0
sack	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
sacrifice	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
sacrifice	offer	003-001	0	1	0	0	2	0	0	0	0	0	0	0	0
salary	pay	003-001	0	1	0	0	0	0	0	0	0	0	0	0	0
salary	cut	003-001	0	7	0	0	2	0	0	1	0	0	0	0	0
satisfaction	feel	003-001	0	8	0	0	12	0	0	5	0	0	12	0	0
satisfaction	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
satisfaction	have	003-001	0	28	0	0	16	0	0	45	0	0	44	0	0
sensation	cause	003-001	1	1	1	0	0	0	0	2	0	0	1	0	1
sensation	create	003-001	1	0	0	0	1	0	0	1	0	0	0	0	0
sensation	feel	003-001	1	8	0	0	12	0	0	5	0	0	12	0	0
settlement	reach	003-001	0	1	0	0	0	0	0	4	0	0	2	0	0
shame	feel	003-001	0	8	0	0	12	0	0	5	0	0	12	0	0
shell	fire	003-001	1	0	0	0	0	0	0	0	0	0	0	0	0
shelter	provide	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
shelter	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
shower	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
slave	free	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
stamp	put	003-001	0	11	0	0	3	0	0	4	0	0	7	0	0
stamp	issue	003-001	0	0	0	0	1	0	0	0	0	0	0	0	0
steel	make	003-001	0	16	0	0	21	0	0	24	0	0	10	0	0
strain	put	003-001	0	11	0	0	3	0	0	4	0	0	7	0	0
stroke	suffer	003-001	0	1	0	0	1	0	0	5	0	0	2	0	0
suicide	attempt	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
sword	draw	003-001	0	2	0	0	1	0	0	0	0	0	0	0	0
sympathy	feel	003-001	0	8	0	0	12	0	0	5	0	0	12	0	0
sympathy	show	003-001	0	2	0	0	10	0	0	7	0	0	4	0	0
tension	reduce	003-001	0	0	0	0	0	0	0	0	0	0	1	0	0
thrill	feel	003-001	0	8	0	0	12	0	0	5	0	0	12	0	0
thrill	get	003-001	0	17	0	0	14	0	0	6	0	0	28	0	0
toilet	use	003-001	0	6	0	0	3	0	0	17	0	0	5	0	0
trail	leave	003-001	0	6	0	0	10	0	0	5	0	0	1	0	0
trail	follow	003-001	0	1	0	0	3	0	0	3	0	0	2	0	0
treaty	sign	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
trend	set	003-001	0	4	0	0	2	0	0	0	0	0	1	0	0
tune	play	003-001	0	6	0	0	3	0	0	2	0	0	12	0	0
tune	sing	003-001	0	1	0	0	0	0	0	0	0	0	1	0	0
tunnel	build	003-001	2	1	0	0	1	0	0	1	0	0	1	0	0
twist	take	003-001	0	13	0	0	14	0	0	17	0	0	26	0	0
van	drive	003-001	0	2	0	0	1	0	0	0	0	0	0	0	0
vitamin	take	003-001	0	13	0	0	14	0	0	17	0	2	26	0	0
whistle	give	003-001	0	4	0	3	14	0	0	15	0	0	11	0	0
wisdom	doubt	003-001	0	0	0	0	0	0	0	0	0	0	0	0	0
wisdom	question	003-001	0	1	0	0	0	0	0	1	0	0	0	0	0
disappointment	express	003-001	0	1	0	0	1	0	0	0	0	0	1	0	0
preference	express	003-001	0	1	0	0	1	0	0	0	0	0	1	0	0
regret	express	003-001	0	1	0	0	1	0	0	0	0	1	1	0	0
satisfaction	express	003-001	0	1	0	0	1	0	0	0	0	0	1	0	0
sympathy	express	003-001	0	1	0	0	1	0	0	0	0	0	1	0	0
anniversary	celebrate	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
arrow	shoot	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
battery	charge	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
colony	establish	003-002	0	0	0	0	0	0	0	0	0	0	1	0	0
constitution	adopt	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
dignity	maintain	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
error	correct	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
flame	fan	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
funeral	attend	003-002	0	1	0	0	1	0	0	0	0	0	0	0	0
handicap	overcome	003-002	0	0	0	0	0	0	0	0	0	0	1	0	0
horn	blow	003-002	0	0	0	0	4	0	0	0	0	0	0	0	0
horn	lock	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
invitation	extend	003-002	0	1	0	0	0	0	0	0	0	0	0	0	0
judgment	reserve	003-002	0	0	0	0	0	0	0	2	0	0	0	0	0
luxury	afford	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
medal	award	003-002	1	0	0	0	0	0	0	0	0	0	0	0	0
miracle	perform	003-002	0	0	0	0	1	0	0	0	0	0	0	0	0
nut	crack	003-002	0	1	0	0	1	0	0	0	0	0	1	0	0
permission	grant	003-002	0	1	0	0	0	0	0	0	0	0	0	0	0
praise	earn	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
recognition	gain	003-002	0	1	0	0	1	0	0	0	0	0	0	0	0
reputation	acquire	003-002	1	0	0	0	0	0	0	0	0	0	0	0	0
reputation	earn	003-002	1	0	0	0	0	0	0	0	0	0	0	0	0
reputation	establish	003-002	1	0	0	0	0	0	0	0	0	0	1	0	0
reputation	gain	003-002	1	1	1	0	1	0	0	0	0	0	0	0	1
ritual	perform	003-002	0	0	0	0	1	0	0	0	0	0	0	0	0
rope	tie	003-002	0	1	0	0	0	0	0	0	0	0	0	0	0
rumor	deny	003-002	0	1	0	0	0	0	0	2	0	0	0	0	0
shelter	seek	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
stamp	collect	003-002	0	0	0	0	4	0	0	1	0	0	1	0	0
suspect	arrest	003-002	0	0	0	0	0	0	0	0	0	0	1	0	0
tension	ease	003-002	0	0	0	0	0	0	0	0	0	0	0	0	0
tooth	brush	003-002	0	0	0	0	0	0	0	0	0	2	0	0	0
whistle	blow	003-002	0	0	0	3	4	3	0	0	0	0	0	0	3
application	reject	003-003	0	1	0	0	0	0	0	0	0	0	0	0	0
envelope	seal	003-003	1	0	0	0	0	0	0	0	0	0	0	0	0
fate	seal	003-003	0	0	0	0	0	0	0	0	0	0	0	0	0
myth	explode	003-003	0	0	0	0	0	0	0	0	0	0	1	0	0
territory	occupy	003-003	0	0	0	0	0	0	0	0	0	0	0	0	0
toe	curl	003-003	0	0	0	0	0	0	0	0	0	0	0	0	0
belt	tighten	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
error	commit	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
grip	tighten	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
invitation	decline	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
satellite	launch	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
settlement	negotiate	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
suicide	commit	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
surgery	undergo	003-004	0	0	0	0	0	0	0	0	0	0	0	0	0
coin	toss	003-005	0	0	0	0	0	0	1	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
consciousness	regain	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
constitution	amend	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
illusion	shatter	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
passion	arouse	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
statue	erect	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
tent	erect	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
toilet	flush	003-005	0	0	0	0	0	0	0	0	0	0	0	0	0
beef	roast	003-006	2	0	0	0	0	0	0	0	0	0	0	0	0
cab	hail	003-006	0	0	0	0	0	0	0	0	0	0	0	0	0
signature	forge	003-006	0	0	0	0	0	0	0	0	0	0	0	0	0
trend	buck	003-006	0	0	0	0	0	0	0	0	0	0	0	0	0
belt	fasten	003-007	0	0	0	0	0	0	0	0	0	0	0	0	0
coin	flip	003-007	0	0	0	0	0	0	0	0	0	0	0	0	0
eyebrow	pluck	003-007	0	0	0	0	0	0	0	0	0	0	0	0	0
feather	pluck	003-007	0	0	0	0	0	0	0	0	0	0	0	0	0
grip	loosen	003-007	0	0	0	0	0	0	0	0	0	0	0	0	0
tooth	grit	003-007	0	0	0	0	0	0	0	0	0	2	0	0	0
treaty	ratify	003-007	0	0	0	0	0	0	0	0	0	0	0	0	0
apartment	rent	×	0	0	0	0	0	0	0	0	0	1	0	0	0
banana	peel	×	0	0	0	0	0	0	0	0	0	0	0	0	0
battery	recharge	×	0	0	0	0	0	0	0	0	0	0	0	0	0
belt	buckle	×	0	0	0	0	0	0	0	0	0	0	0	0	0
cattle	graze	×	0	0	0	0	0	0	1	0	0	0	0	0	0
fist	clench	×	0	0	0	0	0	0	0	0	0	0	0	0	0
flag	hoist	×	0	0	0	0	0	0	0	0	0	0	0	0	0
horn	honk	×	0	0	0	0	0	0	0	0	0	0	0	0	0
lawn	mow	×	1	0	0	0	0	0	0	0	0	0	0	0	0
motion	table	×	0	0	0	0	0	0	0	0	0	0	0	0	0
myth	dispel	×	0	0	0	0	0	0	0	0	0	0	0	0	0
needle	thread	×	0	0	0	0	0	0	0	0	0	0	0	0	0
notion	dispel	×	0	0	0	0	0	0	0	0	0	0	0	0	0
praise	heap	×	0	0	0	0	0	0	0	0	0	0	0	0	0
satellite	orbit	×	0	0	0	0	0	0	0	0	0	0	0	0	0
tent	pitch	×	0	0	0	0	0	0	0	0	0	0	0	0	0
tooth	clench	×	0	0	0	0	0	0	0	0	0	2	0	0	0
tooth	gnash	×	0	0	0	0	0	0	0	0	0	2	0	0	0
adjustment	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
admission	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
affection	show	004-001	0	2	0	0	10	0	0	7	0	0	4	0	0
affection	feel	004-001	0	8	0	0	12	0	0	5	0	0	12	0	0
allegation	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
alliance	form	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
approval	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
approval	get	004-001	0	17	0	0	14	0	0	6	0	0	28	0	0
approval	win	004-001	0	0	0	0	1	0	0	1	0	0	4	0	0
assessment	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
backing	win	004-001	0	0	0	0	1	0	0	1	0	0	4	0	0
bargain	drive	004-001	0	2	0	0	1	0	0	0	0	0	0	0	0
bargain	strike	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
bargain	get	004-001	0	17	0	0	14	0	0	6	0	0	28	0	0
bid	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
boundary	draw	004-001	1	2	0	0	1	0	0	0	0	0	0	0	0
boundary	set	004-001	1	4	0	0	2	0	0	0	0	0	1	0	0
breakdown	have	004-001	0	28	0	0	16	0	0	45	0	1	44	1	1
breakdown	suffer	004-001	0	1	0	0	1	0	0	5	0	1	2	0	0
calculation	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
casualty	suffer	004-001	0	1	0	0	1	0	0	5	0	0	2	0	0
certificate	issue	004-001	0	0	0	0	1	0	0	0	0	0	0	0	0
chaos	cause	004-001	0	1	0	0	0	0	0	2	0	0	1	0	0
chaos	create	004-001	0	0	0	0	1	0	0	1	0	0	0	0	0
clothes	wear	004-001	1	2	0	0	13	0	0	4	0	0	0	0	0
coalition	form	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
commitment	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
complaint	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
compromise	reach	004-001	0	1	0	0	0	0	0	4	0	0	2	0	0
concession	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
consensus	reach	004-001	0	1	0	0	0	0	0	4	0	0	2	0	0
consultation	hold	004-001	0	1	0	0	2	0	0	1	0	0	2	0	0
controversy	cause	004-001	0	1	0	0	0	0	0	2	0	0	1	0	0
coverage	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
criterion	meet	004-001	0	3	0	0	2	0	0	1	0	0	4	0	0
deficit	run	004-001	0	2	0	0	2	0	0	4	0	0	15	0	0
definition	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
delivery	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
delivery	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
determination	show	004-001	0	2	0	0	10	0	0	7	0	0	4	0	0
diagnosis	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
dimension	add	004-001	0	6	0	0	1	0	0	0	0	0	1	0	0
directive	issue	004-001	0	0	0	0	1	0	0	0	0	0	0	0	0
discount	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
discretion	exercise	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
distinction	draw	004-001	0	2	0	0	1	0	0	0	0	0	0	0	0
distinction	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
dividend	pay	004-001	0	1	0	0	0	0	0	0	0	0	0	0	0
dose	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
dose	receive	004-001	0	2	0	0	3	0	0	1	0	0	3	0	0
dose	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
edition	publish	004-001	0	0	0	0	0	0	0	4	0	0	0	0	0
engagement	break	004-001	0	5	0	0	1	0	0	0	0	0	1	0	0
expectation	meet	004-001	0	3	0	0	2	0	0	1	0	0	4	0	0
expense	cover	004-001	0	1	0	0	1	0	0	0	0	0	1	0	0
fee	pay	004-001	0	1	0	0	0	0	0	0	0	0	0	0	0
flexibility	show	004-001	0	2	0	0	10	0	0	7	0	0	4	0	0
guarantee	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
guarantee	provide	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
guidance	offer	004-001	0	1	0	0	2	0	0	0	0	0	0	0	0
guidance	provide	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
guideline	follow	004-001	0	1	0	0	3	0	0	3	0	0	2	0	0
halt	call	004-001	0	1	0	0	10	0	0	3	0	0	1	0	0
hearing	hold	004-001	0	1	0	0	2	0	0	1	0	0	2	0	0
helicopter	fly	004-001	0	0	0	0	0	0	0	1	0	1	1	0	0
hypothesis	test	004-001	0	1	0	0	0	0	0	1	0	0	0	0	0
identification	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
incentive	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
incentive	provide	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
indication	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
infection	spread	004-001	0	0	0	0	0	0	0	0	0	0	3	0	0
inflation	control	004-001	0	0	0	0	0	0	0	1	0	0	0	0	0
initiative	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
inquiry	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
insight	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
insight	provide	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
intention	state	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
investment	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
journal	publish	004-001	0	0	0	0	0	0	1	4	0	0	0	0	0
legislation	pass	004-001	0	1	0	0	1	0	0	0	0	0	4	0	0
legislation	introduce	004-001	0	0	0	0	1	0	0	0	0	0	0	0	0
liability	accept	004-001	0	4	0	0	0	0	0	1	0	0	0	0	0
living	make	004-001	2	16	0	0	21	0	4	24	0	6	10	0	0
loan	get	004-001	0	17	0	0	14	0	0	6	0	0	28	0	0
loyalty	show	004-001	0	2	0	0	10	0	0	7	0	0	4	0	0
measurement	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
missile	fire	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
motive	question	004-001	0	1	0	0	0	0	0	1	0	0	0	0	0
negotiation	open	004-001	0	3	0	0	2	0	0	1	0	0	6	0	0
objection	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
objection	raise	004-001	0	0	0	0	2	0	0	2	0	0	3	0	0
obligation	feel	004-001	0	8	0	0	12	0	0	5	0	0	12	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
obligation	meet	004-001	0	3	0	0	2	0	0	1	0	0	4	0	0
offence	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
offence	cause	004-001	0	1	0	0	0	0	0	2	0	0	1	0	0
output	increase	004-001	0	0	0	0	0	0	0	2	0	0	1	0	0
partnership	form	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
payment	receive	004-001	0	2	0	0	3	0	0	1	0	0	3	0	0
payment	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
penalty	pay	004-001	0	1	0	1	0	0	0	0	0	0	0	0	0
petition	present	004-001	0	1	0	0	0	0	0	1	0	0	0	0	0
petition	sign	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
pity	feel	004-001	0	8	0	0	12	0	1	5	0	0	12	0	0
poll	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
prediction	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
premium	put	004-001	0	11	0	0	3	0	0	4	0	0	7	0	0
premium	pay	004-001	0	1	0	0	0	0	0	0	0	0	0	0	0
privilege	enjoy	004-001	0	2	0	0	3	0	0	4	0	0	1	0	0
procedure	follow	004-001	0	1	0	0	3	0	0	3	0	0	2	0	0
proceeding	bring	004-001	0	5	0	0	5	0	0	4	0	0	3	0	0
profile	keep	004-001	0	3	0	0	1	0	0	3	0	0	13	0	0
proof	provide	004-001	0	0	0	0	0	0	1	0	0	0	0	0	0
proposal	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
proposal	support	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
proposal	accept	004-001	0	4	0	0	0	0	0	1	0	0	0	0	0
prosecution	face	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
provision	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
publicity	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
publicity	get	004-001	0	17	0	0	14	0	0	6	0	0	28	0	0
publicity	receive	004-001	0	2	0	0	3	0	0	1	0	0	3	0	0
punishment	escape	004-001	0	0	0	0	0	0	0	0	0	0	0	0	0
punishment	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
rally	hold	004-001	0	1	0	0	2	0	0	1	0	0	2	0	0
reception	give	004-001	0	4	0	0	14	0	0	15	0	0	11	0	0
reception	hold	004-001	0	1	0	0	2	0	0	1	0	0	2	0	0
reception	get	004-001	0	17	0	0	14	0	0	6	0	0	28	0	0
recommendation	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
recording	make	004-001	0	16	0	1	21	0	0	24	0	0	10	0	0
recovery	make	004-001	0	16	0	0	21	0	0	24	0	1	10	0	0
reduction	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
reference	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
referendum	hold	004-001	0	1	0	0	2	0	0	1	0	0	2	0	0
rent	pay	004-001	0	1	0	0	0	0	0	0	0	0	0	0	0
requirement	meet	004-001	0	3	0	0	2	0	0	1	0	0	4	0	0
resolution	pass	004-001	0	1	0	0	1	0	0	0	0	0	4	0	0
retreat	beat	004-001	0	0	0	0	0	0	0	0	0	0	14	0	0
revenue	raise	004-001	0	0	0	0	2	0	0	2	0	0	3	0	0
review	receive	004-001	0	2	0	0	3	0	0	1	0	0	3	0	0
screw	turn	004-001	0	6	0	0	4	0	0	1	0	0	3	0	0
seminar	hold	004-001	0	1	0	0	2	0	0	1	0	0	2	0	0
spending	increase	004-001	0	0	0	1	0	0	1	2	0	0	1	0	0
stance	take	004-001	0	13	0	0	14	0	0	17	0	0	26	0	0
transition	make	004-001	0	16	0	0	21	0	0	24	0	0	10	0	0
verdict	reach	004-001	0	1	0	0	0	0	0	4	0	0	2	0	0
verdict	return	004-001	0	2	0	0	1	0	0	3	0	0	1	0	0
verse	write	004-001	0	1	0	0	1	0	0	6	0	0	1	0	0
acceptance	gain	004-002	1	1	0	0	1	0	0	0	0	0	0	0	0
affection	display	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
allegation	deny	004-002	0	1	0	0	0	0	0	2	0	0	0	0	0
budget	balance	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
criterion	apply	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
dispute	settle	004-002	0	0	0	0	0	0	0	1	0	0	0	0	0
engagement	announce	004-002	0	0	0	0	1	0	0	0	0	0	0	0	0
fee	charge	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
infection	prevent	004-002	0	1	0	0	0	0	0	0	0	0	0	0	0
insight	gain	004-002	0	1	0	0	1	0	0	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
intention	announce	004-002	0	0	0	0	1	0	0	0	0	0	0	0	0
intention	declare	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
living	earn	004-002	2	0	0	0	0	0	4	0	0	6	0	0	0
privilege	grant	004-002	0	1	0	0	0	0	0	0	0	0	0	0	0
profile	maintain	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
receiver	replace	004-002	0	1	0	0	0	0	0	0	0	0	0	0	0
requirement	satisfy	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
resolution	adopt	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
seminar	attend	004-002	0	1	0	0	1	0	0	0	0	0	0	0	0
stance	adopt	004-002	0	0	0	0	0	0	0	0	0	0	0	0	0
tumor	remove	004-002	0	0	0	0	1	0	0	8	0	0	0	0	0
whip	crack	004-002	0	1	0	0	1	0	0	0	0	0	1	0	0
amendment	propose	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
complaint	file	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
diagnosis	confirm	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
fabric	weave	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
obligation	fulfill	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
petition	file	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
proposal	reject	004-003	0	1	0	0	0	0	0	0	0	0	0	0	0
suspicion	confirm	004-003	0	0	0	0	0	0	0	0	0	0	0	0	0
dispute	resolve	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
expectation	exceed	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
inquiry	launch	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
missile	launch	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
penalty	impose	004-004	0	0	0	1	0	0	0	0	0	0	0	0	0
screw	tighten	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
sin	commit	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
transformation	undergo	004-004	0	0	0	0	0	0	0	0	0	0	0	0	0
complaint	lodge	004-005	0	0	0	0	0	0	0	0	0	0	0	0	0
controversy	arouse	004-005	0	0	0	0	0	0	0	0	0	0	0	0	0
expense	incur	004-005	0	0	0	0	0	0	0	0	0	0	0	0	0
loyalty	pledge	004-005	0	0	0	0	0	0	0	0	0	0	0	0	0
scope	widen	004-005	0	0	0	0	0	0	0	0	0	0	0	0	0
suspicion	arouse	004-005	0	0	0	0	0	0	0	0	0	0	0	0	0
plot	uncover	004-006	0	0	0	0	0	0	0	0	0	0	0	0	0
conviction	overturn	004-007	0	0	0	0	0	0	0	0	0	0	0	0	0
boundary	redraw	×	1	0	0	0	0	0	0	0	0	0	0	0	0
suspicion	allay	×	0	0	0	0	0	0	0	0	0	0	0	0	0
accusation	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
analogy	draw	005-001	0	2	0	0	1	0	0	0	0	0	0	0	0
apology	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
apology	offer	005-001	0	1	0	0	2	0	0	0	0	0	0	0	0
apology	demand	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
apology	accept	005-001	0	4	0	0	0	0	0	1	0	0	0	0	0
appetite	lose	005-001	0	3	0	0	1	0	1	9	0	0	8	0	0
appreciation	show	005-001	0	2	0	1	10	0	0	7	0	0	4	0	0
assertion	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
auction	hold	005-001	0	1	0	0	2	0	0	1	0	0	2	0	0
beard	grow	005-001	0	5	0	0	3	0	0	3	0	0	2	0	0
bonus	pay	005-001	0	1	0	0	0	0	0	0	0	0	0	0	0
bonus	receive	005-001	0	2	0	0	3	0	0	1	0	0	3	0	0
booking	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
cargo	carry	005-001	0	2	0	0	4	0	0	2	0	0	1	0	0
cart	draw	005-001	0	2	0	0	1	0	0	0	0	0	0	0	0
caution	exercise	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
champagne	drink	005-001	0	2	0	0	1	0	0	1	0	0	0	0	0
complication	cause	005-001	0	1	0	0	0	0	0	2	0	0	1	0	0
confrontation	avoid	005-001	0	1	0	0	0	0	0	3	0	0	0	0	0
contempt	show	005-001	0	2	0	0	10	0	0	7	0	0	4	0	0
credibility	lose	005-001	0	3	0	0	1	0	0	9	0	0	8	0	0
credibility	damage	005-001	0	2	0	0	0	0	0	0	0	0	1	0	0
custody	take	005-001	0	13	0	0	14	0	0	17	0	0	26	0	0
deadline	set	005-001	0	4	0	0	2	0	0	0	0	0	1	0	0
deadline	meet	005-001	0	3	0	0	2	0	0	1	0	0	4	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
decree	issue	005-001	0	0	0	0	1	0	0	0	0	0	0	0	0
dilemma	face	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
distress	cause	005-001	0	1	0	0	0	0	0	2	0	0	1	0	0
distress	suffer	005-001	0	1	0	0	1	0	0	5	0	0	2	0	0
disturbance	cause	005-001	0	1	0	0	0	0	0	2	0	0	1	0	0
documentary	film	005-001	1	0	0	0	0	0	0	0	0	0	0	0	0
donation	make	005-001	0	16	0	0	21	0	0	24	0	3	10	1	1
embarrassment	cause	005-001	0	1	0	0	0	0	0	2	0	0	1	0	0
encouragement	give	005-001	0	4	0	0	14	0	0	15	0	0	11	0	0
enjoyment	provide	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
enjoyment	get	005-001	0	17	0	0	14	0	0	6	0	0	28	0	0
exit	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
fame	achieve	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
fame	win	005-001	0	0	0	0	1	0	0	1	0	0	4	0	0
fare	pay	005-001	0	1	0	0	0	0	0	0	0	0	0	0	0
feedback	give	005-001	0	4	0	0	14	0	0	15	0	0	11	0	0
feedback	get	005-001	0	17	0	0	14	0	0	6	0	0	28	0	0
ferry	board	005-001	0	0	0	0	0	0	2	0	0	0	0	0	0
ferry	take	005-001	0	13	0	0	14	0	2	17	0	0	26	0	0
frontier	cross	005-001	0	0	0	0	0	0	0	1	0	0	0	0	0
glimpse	catch	005-001	0	1	0	0	3	0	0	2	0	0	1	0	0
hatred	feel	005-001	0	8	0	0	12	0	0	5	0	0	12	0	0
headache	get	005-001	0	17	0	0	14	0	0	6	0	0	28	0	0
injection	give	005-001	0	4	0	0	14	0	0	15	0	0	11	0	0
inspiration	provide	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
inspiration	draw	005-001	0	2	0	0	1	0	0	0	0	0	0	0	0
inspiration	find	005-001	0	7	0	0	11	0	0	13	0	0	6	0	0
lid	put	005-001	0	11	0	0	3	0	0	4	0	0	7	0	0
lorry	drive	005-001	0	2	0	0	1	0	0	0	0	0	0	0	0
maturity	reach	005-001	0	1	0	0	0	0	0	4	0	0	2	0	0
mercy	show	005-001	0	2	0	0	10	0	0	7	0	0	4	0	0
misery	cause	005-001	0	1	0	0	0	0	0	2	0	0	1	0	0
parcel	send	005-001	0	1	0	0	5	0	0	4	0	0	0	0	0
patience	test	005-001	0	1	0	0	0	0	0	1	0	0	0	0	0
patience	lose	005-001	0	3	0	0	1	0	0	9	0	0	8	0	0
pie	make	005-001	0	16	0	0	21	0	1	24	0	0	10	0	0
pill	take	005-001	0	13	0	0	14	0	0	17	0	0	26	0	0
plea	enter	005-001	0	0	0	0	1	0	0	0	0	0	0	0	0
plea	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
pony	ride	005-001	0	0	0	0	0	0	0	3	0	0	3	0	0
popularity	enjoy	005-001	0	2	0	0	3	0	0	4	0	0	1	0	0
prey	fall	005-001	0	0	0	0	0	0	0	3	0	0	0	0	0
pulse	feel	005-001	0	8	0	0	12	0	0	5	0	0	12	0	0
pulse	take	005-001	0	13	0	0	14	0	0	17	0	0	26	0	0
questionnaire	return	005-001	0	2	0	0	1	0	0	3	0	0	1	0	0
queue	join	005-001	0	0	0	0	1	0	0	1	0	0	1	0	0
queue	jump	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
quota	set	005-001	0	4	0	0	2	0	0	0	0	0	1	0	0
reluctance	show	005-001	0	2	0	0	10	0	0	7	0	0	4	0	0
resentment	feel	005-001	0	8	0	0	12	0	0	5	0	0	12	0	0
restraint	exercise	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
rib	break	005-001	0	5	0	0	1	0	0	0	0	0	1	0	0
rifle	fire	005-001	0	0	0	0	0	0	0	0	0	0	0	0	0
scholarship	get	005-001	0	17	0	0	14	0	0	6	0	2	28	0	0
scholarship	win	005-001	0	0	0	0	1	0	0	1	0	2	4	0	0
splash	make	005-001	0	16	0	0	21	0	0	24	0	0	10	0	0
tablet	take	005-001	0	13	0	0	14	0	2	17	1	0	26	0	1
tan	get	005-001	0	17	0	0	14	0	0	6	0	0	28	0	0
temper	control	005-001	0	0	0	1	0	0	0	1	0	0	0	0	0
temper	keep	005-001	0	3	0	1	1	0	0	3	0	0	13	0	0
temper	lose	005-001	0	3	0	1	1	0	0	9	0	0	8	0	0
torch	carry	005-001	0	2	0	0	4	0	3	2	1	3	1	0	1
tribute	pay	005-001	0	1	0	0	0	0	0	0	0	0	0	0	0
trophy	present	005-001	0	1	0	0	0	0	0	1	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
trophy	win	005-001	0	0	0	0	1	0	0	1	0	0	4	0	0
warrant	issue	005-001	0	0	0	0	1	0	0	0	0	0	0	0	0
willingness	show	005-001	2	2	0	0	10	0	0	7	0	0	4	0	0
workforce	cut	005-001	0	7	0	0	2	0	0	1	0	0	0	0	0
workforce	reduce	005-001	0	0	0	0	0	0	0	0	0	0	1	0	0
appreciation	express	005-001	0	1	0	1	1	0	0	0	0	0	1	0	0
disgust	express	005-001	0	1	0	0	1	0	0	0	0	0	1	0	0
outrage	express	005-001	0	1	0	0	1	0	0	0	0	0	1	0	0
sentiment	express	005-001	0	1	0	0	1	0	0	0	0	0	1	0	0
willingness	express	005-001	2	1	0	0	1	0	0	0	0	0	1	0	0
accusation	deny	005-002	0	1	0	0	0	0	0	2	0	0	0	0	0
appetite	satisfy	005-002	0	0	0	0	0	0	1	0	0	0	0	0	0
asylum	seek	005-002	0	0	0	0	0	0	0	0	0	0	0	0	0
bankruptcy	declare	005-002	0	0	0	0	0	0	0	0	0	0	0	0	0
bladder	empty	005-002	0	0	0	0	0	0	0	0	0	0	0	0	0
curiosity	satisfy	005-002	0	0	0	0	0	0	0	0	0	0	0	0	0
flour	mix	005-002	1	0	0	0	0	0	0	2	0	0	0	0	0
knot	tie	005-002	0	1	0	0	0	0	0	0	0	0	0	0	0
obstacle	overcome	005-002	0	0	0	0	0	0	0	0	0	0	1	0	0
obstacle	remove	005-002	0	0	0	0	1	0	0	8	0	0	0	0	0
patent	grant	005-002	0	1	0	0	0	0	0	0	0	0	0	0	0
popularity	gain	005-002	0	1	0	0	1	0	0	0	0	0	0	0	0
scholarship	award	005-002	0	0	0	0	0	0	0	0	0	2	0	0	0
yacht	sail	005-002	0	0	0	0	0	0	0	0	0	0	0	0	0
ankle	twist	005-003	0	0	0	0	0	0	0	0	0	0	0	0	0
lemon	squeeze	005-003	0	0	0	0	0	0	0	0	0	1	0	0	0
pill	swallow	005-003	0	0	0	0	0	0	0	0	0	0	0	0	0
plea	reject	005-003	0	1	0	0	0	0	0	0	0	0	0	0	0
sentiment	echo	005-003	0	0	0	0	0	0	0	0	0	0	1	0	0
temptation	resist	005-003	0	0	0	0	0	0	0	0	0	0	0	0	0
confrontation	provoke	005-004	0	0	0	0	0	0	0	0	0	0	0	0	0
credibility	undermine	005-004	0	0	0	0	0	0	0	0	0	0	0	0	0
injection	administer	005-004	0	0	0	0	0	0	0	0	0	0	0	0	0
nail	polish	005-004	0	0	0	0	0	0	0	0	0	0	0	0	0
sanction	impose	005-004	0	0	0	0	0	0	0	0	0	0	0	0	0
tariff	impose	005-004	0	0	0	0	0	0	0	0	0	0	0	0	0
outrage	spark	005-005	0	0	0	0	0	0	0	0	0	0	0	0	0
pill	prescribe	005-005	0	0	0	0	0	0	0	0	0	0	0	0	0
privacy	invade	005-005	0	0	0	0	0	0	0	0	0	0	0	0	0
rebellion	crush	005-005	0	0	0	0	0	0	0	0	0	0	0	0	0
revolt	crush	005-005	0	0	0	0	0	0	0	0	0	0	0	0	0
champagne	sip	005-006	0	0	0	0	0	0	0	0	0	0	0	0	0
armor	pierce	005-007	0	0	0	0	0	0	0	0	0	0	0	0	0
brow	wrinkle	005-008	0	0	0	0	0	0	0	0	0	0	0	0	0
agony	prolong	×	0	0	0	0	0	0	0	0	0	0	0	0	0
ankle	sprain	×	0	0	0	0	0	0	0	0	0	0	0	0	0
brow	mop	×	0	0	0	0	0	0	0	0	0	0	0	0	0
nail	hammer	×	0	0	0	0	0	0	0	0	0	0	0	0	0
nail	manicure	×	0	0	0	0	0	0	0	0	0	0	0	0	0
throne	ascend	×	0	0	0	0	0	0	0	0	0	0	0	0	0
acquaintance	make	006-001	0	16	0	0	21	0	0	24	0	0	10	0	0
antibiotic	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0
banner	wave	006-001	0	0	0	0	0	0	0	0	0	0	0	0	0
blessing	give	006-001	0	4	0	0	14	0	0	15	0	0	11	0	0
breakthrough	achieve	006-001	1	0	0	0	0	0	0	0	0	0	0	0	0
breakthrough	make	006-001	1	16	0	0	21	0	0	24	0	0	10	0	0
bulletin	issue	006-001	0	0	0	0	1	0	0	0	0	0	0	0	0
cartoon	draw	006-001	0	2	0	0	1	0	1	0	0	0	0	0	0
ceasefire	sign	006-001	0	0	0	0	0	0	0	0	0	0	0	0	0
clearance	get	006-001	0	17	0	0	14	0	0	6	0	0	28	0	0
clearance	receive	006-001	0	2	0	0	3	0	0	1	0	0	3	0	0
clearance	give	006-001	0	4	0	0	14	0	0	15	0	0	11	0	0
confession	make	006-001	0	16	0	0	21	0	0	24	0	0	10	0	0
cue	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
debris	clear	006-001	0	1	0	0	2	0	0	1	0	0	4	0	0
denial	issue	006-001	0	0	0	0	1	0	0	0	0	0	0	0	0
destiny	shape	006-001	0	0	0	0	0	0	0	0	0	0	0	0	0
disruption	cause	006-001	0	1	0	0	0	0	0	2	0	0	1	0	0
freight	carry	006-001	0	2	0	0	4	0	0	2	0	0	1	0	0
fuss	make	006-001	0	16	0	0	21	0	0	24	0	0	10	0	0
goodwill	show	006-001	0	2	0	0	10	0	0	7	0	0	4	0	0
gospel	spread	006-001	0	0	0	0	0	0	0	0	0	0	3	0	0
gratitude	show	006-001	0	2	0	0	10	0	0	7	0	0	4	0	0
hardship	suffer	006-001	0	1	0	0	1	0	0	5	0	0	2	0	0
hay	make	006-001	0	16	0	0	21	0	0	24	0	0	10	0	0
homework	do	006-001	0	28	0	0	19	0	0	24	0	0	37	0	0
hospitality	offer	006-001	0	1	0	0	2	0	0	0	0	0	0	0	0
hostage	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0
hurdle	clear	006-001	0	1	0	0	2	0	0	1	0	0	4	0	0
injunction	issue	006-001	0	0	0	0	1	0	0	0	0	0	0	0	0
innocence	prove	006-001	0	1	0	0	0	0	0	2	0	0	0	0	0
inquest	hold	006-001	0	1	0	0	2	0	0	1	0	0	2	0	0
intercourse	have	006-001	0	28	0	0	16	0	0	45	0	0	44	0	0
jealousy	feel	006-001	0	8	0	0	12	0	0	5	0	0	12	0	0
marathon	run	006-001	0	2	0	0	2	0	8	4	0	8	15	4	4
momentum	lose	006-001	0	3	0	0	1	0	0	9	0	0	8	0	0
nomination	win	006-001	0	0	0	0	1	0	0	1	0	0	4	0	0
nomination	accept	006-001	0	4	0	0	0	0	0	1	0	0	0	0	0
passport	issue	006-001	0	0	0	3	1	0	0	0	0	0	0	0	0
perfection	achieve	006-001	0	0	0	0	0	0	0	0	0	0	0	0	0
pistol	fire	006-001	0	0	0	0	0	0	0	0	0	0	0	0	0
postcard	send	006-001	0	1	0	0	5	0	0	4	0	0	0	0	0
precaution	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0
precedent	set	006-001	0	4	0	0	2	0	0	0	0	0	1	0	0
prestige	enjoy	006-001	0	2	0	0	3	0	0	4	0	0	1	0	0
prose	write	006-001	0	1	0	0	1	0	0	6	0	0	1	0	0
refuge	give	006-001	0	4	0	0	14	0	0	15	0	0	11	0	0
refuge	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0
resemblance	bear	006-001	0	2	0	0	1	0	0	1	0	0	4	0	0
revenge	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0
rocket	fire	006-001	0	0	0	0	0	0	0	0	0	0	0	0	0
sadness	feel	006-001	0	8	0	0	12	0	0	5	0	2	12	0	0
sanctuary	offer	006-001	0	1	0	0	2	0	0	0	0	0	0	0	0
scarf	wear	006-001	0	2	0	0	13	0	0	4	0	0	0	0	0
solidarity	show	006-001	0	2	0	0	10	0	0	7	0	0	4	0	0
testimony	give	006-001	0	4	0	0	14	0	0	15	0	0	11	0	0
tolerance	show	006-001	0	2	0	0	10	0	0	7	0	0	4	0	0
toll	take	006-001	0	13	0	0	14	0	0	17	0	0	26	0	0
vacuum	create	006-001	0	0	0	0	1	0	0	1	0	0	0	0	0
vacuum	fill	006-001	0	1	0	0	3	0	0	1	0	0	1	0	0
void	fill	006-001	0	1	0	0	3	0	0	1	0	0	1	0	0
void	leave	006-001	0	6	0	0	10	0	0	5	0	0	1	0	0
weed	kill	006-001	0	0	0	0	1	0	0	1	0	0	4	0	0
dismay	express	006-001	0	1	0	0	1	0	0	0	0	0	1	0	0
gratitude	express	006-001	0	1	0	0	1	0	0	0	0	0	1	0	0
optimism	express	006-001	0	1	0	0	1	0	0	0	0	0	1	0	0
sadness	express	006-001	0	1	0	0	1	0	0	0	0	2	1	0	0
allegiance	owe	006-002	0	0	0	0	0	0	0	0	0	0	0	0	0
allegiance	switch	006-002	0	0	0	0	0	0	0	0	0	0	0	0	0
amnesty	grant	006-002	0	1	0	0	0	0	0	0	0	0	0	0	0
bail	grant	006-002	0	1	0	0	0	0	0	0	0	0	0	0	0
brake	apply	006-002	0	0	0	0	0	0	0	0	0	0	0	0	0
citizenship	grant	006-002	1	1	0	0	0	0	0	0	0	0	0	0	0
hurdle	overcome	006-002	0	0	0	0	0	0	0	0	0	0	1	0	0
injunction	grant	006-002	0	1	0	0	0	0	0	0	0	0	0	0	0
innocence	protest	006-002	0	0	0	0	0	0	0	0	0	0	0	0	0
momentum	gather	006-002	0	5	0	0	3	0	0	0	0	0	0	0	0
precedent	establish	006-002	0	0	0	0	0	0	0	0	0	0	1	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
refuge	seek	006-002	0	0	0	0	0	0	0	0	0	0	0	0	0
sanctuary	seek	006-002	0	0	0	0	0	0	0	0	0	0	0	0	0
scarf	tie	006-002	0	1	0	0	0	0	0	0	0	0	0	0	0
suitcase	pack	006-002	0	0	0	0	1	0	0	0	0	0	0	0	0
pistol	load	006-003	0	0	0	0	0	0	0	0	0	0	0	0	0
scarf	wrap	006-003	0	0	0	0	0	0	0	0	0	0	0	0	0
allegiance	swear	006-004	0	0	0	0	0	0	0	0	0	0	0	0	0
morale	boost	006-004	0	0	0	0	0	0	0	0	0	0	0	0	0
rocket	launch	006-004	0	0	0	0	0	0	0	0	0	0	0	0	0
acquaintance	renew	006-005	0	0	0	0	0	0	0	0	0	0	0	0	0
allegiance	pledge	006-005	0	0	0	0	0	0	0	0	0	0	0	0	0
antibiotic	prescribe	006-005	0	0	0	0	0	0	0	0	0	0	0	0	0
gospel	preach	006-005	0	0	0	0	0	0	0	0	0	0	0	0	0
slogan	chant	006-006	0	0	0	0	0	0	0	0	0	0	0	0	0
veto	override	006-007	0	0	0	0	0	0	0	0	0	0	0	0	0
banner	unfurl	×	0	0	0	0	0	0	0	0	0	0	0	0	0
revenge	exact	×	0	0	0	0	0	0	0	0	0	0	0	0	0
anguish	cause	007-001	0	1	0	0	0	0	0	2	0	0	1	0	0
applause	draw	007-001	0	2	0	0	1	0	0	0	0	0	0	0	0
applause	win	007-001	0	0	0	0	1	0	0	1	0	0	4	0	0
chess	play	007-001	0	6	0	0	3	0	0	2	0	0	12	0	0
cigar	light	007-001	0	0	0	0	0	0	0	0	0	0	0	0	0
climax	reach	007-001	0	1	0	0	0	0	0	4	0	0	2	0	0
comeback	attempt	007-001	0	0	0	0	0	0	0	0	0	0	0	0	0
comeback	make	007-001	0	16	0	0	21	0	0	24	0	0	10	0	0
comeback	stage	007-001	0	0	0	0	0	0	0	0	0	0	0	0	0
compassion	show	007-001	0	2	0	0	10	0	0	7	0	0	4	0	0
dam	build	007-001	0	1	0	0	1	0	0	1	0	0	1	0	0
discomfort	cause	007-001	0	1	0	0	0	0	0	2	0	0	1	0	0
discomfort	experience	007-001	0	1	0	0	0	0	0	1	0	0	0	0	0
disgrace	bring	007-001	0	5	0	0	5	0	0	4	0	0	3	0	0
endorsement	give	007-001	0	4	0	0	14	0	0	15	0	0	11	0	0
endorsement	receive	007-001	0	2	0	0	3	0	0	1	0	0	3	0	0
hockey	play	007-001	0	6	0	0	3	0	0	2	0	0	12	0	0
honeymoon	spend	007-001	0	0	0	0	2	0	0	3	0	0	1	0	0
inventory	take	007-001	0	13	0	0	14	0	0	17	0	0	26	0	0
lawsuit	bring	007-001	0	5	0	0	5	0	0	4	0	0	3	0	0
medication	take	007-001	0	13	0	0	14	0	0	17	0	0	26	0	0
medication	give	007-001	0	4	0	0	14	0	0	15	0	0	11	0	0
meditation	practice	007-001	0	0	0	0	1	0	0	2	0	0	1	0	0
memoir	publish	007-001	0	0	0	0	0	0	0	4	0	0	0	0	0
memoir	write	007-001	0	1	0	0	1	0	0	6	0	0	1	0	0
oath	take	007-001	0	13	0	0	14	0	0	17	0	0	26	0	0
pastry	make	007-001	0	16	0	0	21	0	0	24	0	0	10	0	0
perfume	wear	007-001	1	2	0	0	13	0	0	4	0	0	0	0	0
pilgrimage	make	007-001	0	16	0	0	21	0	0	24	0	0	10	0	0
prominence	give	007-001	0	4	0	0	14	0	0	15	0	0	11	0	0
reinforcement	send	007-001	0	1	0	0	5	0	0	4	0	0	0	0	0
salute	give	007-001	0	4	0	0	14	0	0	15	0	0	11	0	0
salute	take	007-001	0	13	0	0	14	0	0	17	0	0	26	0	0
setback	receive	007-001	0	2	0	0	3	0	0	1	0	0	3	0	0
sorrow	feel	007-001	0	8	0	0	12	0	0	5	0	0	12	0	0
spice	add	007-001	0	6	0	0	1	0	0	0	0	3	1	0	0
spotlight	turn	007-001	0	6	0	0	4	0	0	1	0	0	3	0	0
terrorism	fight	007-001	0	0	0	0	1	0	0	0	0	0	2	0	0
trauma	suffer	007-001	0	1	0	0	1	0	0	5	0	0	2	0	0
vaccine	give	007-001	0	4	0	0	14	0	0	15	0	0	11	0	0
veil	draw	007-001	0	2	0	0	1	0	0	0	0	0	0	0	0
veil	lift	007-001	0	0	0	0	0	0	0	1	0	0	1	0	0
visa	get	007-001	0	17	0	0	14	0	0	6	0	0	28	0	0
dissatisfaction	express	007-001	0	1	0	0	1	0	0	0	0	0	1	0	0
irritation	express	007-001	0	1	0	0	1	0	0	0	0	0	1	0	0
sorrow	express	007-001	0	1	0	0	1	0	0	0	0	0	1	0	0
cigar	smoke	007-002	0	0	0	0	0	0	0	0	0	0	0	0	0

Nodes	Collocates	Level (N+C)	S-N	S-V	S-C	O-N	O-V	O-C	U-N	U-V	U-C	M-N	M-V	M-C	F of C
feat	perform	007-002	0	0	0	0	1	0	0	0	0	0	0	0	0
imbalance	correct	007-002	0	0	0	0	0	0	0	0	0	0	0	0	0
lawsuit	settle	007-002	0	0	0	0	0	0	0	1	0	0	0	0	0
posture	adopt	007-002	0	0	0	0	0	0	0	0	0	0	0	0	0
prominence	gain	007-002	0	1	0	0	1	0	0	0	0	0	0	0	0
visa	grant	007-002	0	1	0	0	0	0	0	0	0	0	0	0	0
lawsuit	file	007-003	0	0	0	0	0	0	0	0	0	0	0	0	0
moisture	absorb	007-003	0	0	0	0	0	0	0	0	0	0	0	0	0
censorship	impose	007-004	0	0	0	0	0	0	0	0	0	0	0	0	0
crusade	launch	007-004	0	0	0	0	0	0	0	0	0	0	0	0	0
oath	swear	007-004	0	0	0	0	0	0	0	0	0	0	0	0	0
awe	inspire	007-005	0	0	0	0	0	0	0	1	0	0	0	0	0
feat	accomplish	007-005	0	0	0	0	0	0	0	0	0	0	0	0	0
terrorism	combat	007-006	0	0	0	0	0	0	0	0	0	0	0	0	0
steak	grill	007-007	0	0	0	0	0	0	0	0	0	0	0	0	0
boredom	relieve	×	0	0	0	0	0	0	0	0	0	0	0	0	0
imbalance	redress	×	0	0	0	0	0	0	0	0	0	0	0	0	0
backdrop	provide	008-001	0	0	0	0	0	0	1	0	0	0	0	0	0
blockade	lift	008-001	0	0	0	0	0	0	0	1	0	0	1	0	0
condemnation	issue	008-001	0	0	0	0	1	0	0	0	0	0	0	0	0
credential	present	008-001	0	1	0	0	0	0	0	1	0	0	0	0	0
envoy	send	008-001	0	1	0	0	5	0	0	4	0	0	0	0	0
havoc	play	008-001	0	6	0	0	3	0	0	2	0	0	12	0	0
impatience	show	008-001	0	2	0	0	10	0	0	7	0	0	4	0	0
lottery	win	008-001	0	0	0	0	1	0	0	1	0	0	4	0	0
motorcycle	ride	008-001	0	0	0	0	0	0	0	3	0	0	3	0	0
reunion	hold	008-001	0	1	0	0	2	0	0	1	0	0	2	0	0
rift	cause	008-001	0	1	0	0	0	0	0	2	0	0	1	0	0
truce	call	008-001	0	1	0	0	10	0	0	3	0	0	1	0	0
wig	wear	008-001	0	2	0	0	13	0	0	4	0	0	0	0	0
credential	establish	008-002	0	0	0	0	0	0	0	0	0	0	1	0	0
truce	declare	008-002	0	0	0	0	0	0	0	0	0	0	0	0	0
forgiveness	beg	008-003	0	0	0	0	0	0	0	0	0	0	0	0	0
atrocity	commit	008-004	0	0	0	0	0	0	0	0	0	0	0	0	0
blockade	impose	008-004	0	0	0	0	0	0	0	0	0	0	0	0	0
slavery	abolish	008-004	0	0	0	0	0	0	0	0	0	1	0	0	0
rift	heal	008-005	0	0	0	0	5	0	0	0	0	0	0	0	0
havoc	wreak	×	0	0	0	0	0	0	0	0	0	0	0	0	0

Level (N+C) = Level (Node + Collocate)

S = *Sunshine English course* I O = *One World English course* I

U = *Unicorn English course* I M = *Milestone English course* I

N = nouns V = verbs C = Collocation F = Frequency

Appendix D. Rank of frequency of collocations in the BNC, the TIME corpus and the English I textbook corpus

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
place	take	001-001	1	12027	413.3	10	17	31	1
thing	do	001-001	2	9961	116.7	1	45	1	6
effect	have	001-001	3	7222	61.1	13	15	13	2
work	do	001-001	4	5164	44.4	4	23	31	1
time	take	001-001	5	4669	41.0	15	14	31	1
decision	make	001-001	6	4451	198.2	11	16	31	1
job	do	001-001	7	4330	78.6	3	24	0	0
question	ask	001-001	8	4248	302.9	9	18	6	3
part	take	001-001	9	3858	99.7	55	5	31	1
head	shake	001-001	10	3822	735.0	107	3	0	0
door	open	001-001	11	3560	492.6	22	12	0	0
role	play	001-001	12	3355	412.9	2	39	31	1
way	make	001-001	13	3320	32.7	107	3	0	0
part	play	001-001	14	3073	207.8	274	1	0	0
thing	say	001-001	15	3004	24.1	32	8	31	1
action	take	001-001	16	2912	130.6	74	4	13	2
sense	make	001-001	17	2818	124.3	11	16	31	1
use	make	001-001	18	2814	95.5	166	2	0	0
way	find	001-001	19	2742	64.1	5	21	6	3
difficulty	have	001-001	20	2655	33.8	0	0	0	0
step	take	001-001	21	2643	177.7	25	11	2	4
service	provide	001-001	22	2636	159.1	274	1	0	0
care	take	001-001	23	2609	140.0	22	12	13	2
question	answer	001-001	24	2598	463.6	25	11	13	2
point	make	001-001	25	2562	60.9	55	5	31	1
difference	make	001-001	26	2145	126.4	32	8	0	0
advantage	take	002-001	27	2112	164.3	46	6	0	0
story	tell	001-001	28	2054	188.1	6	19	0	0
problem	solve	001-002	29	2016	483.1	32	9	31	1
job	get	001-001	30	2008	61.8	32	9	31	1
mistake	make	001-001	31	1968	199.6	15	14	6	3
game	play	001-001	32	1956	237.9	20	13	6	3
effort	make	001-001	33	1909	142.9	55	5	31	1
trouble	have	001-001	34	1891	27.6	6	19	13	2
attempt	make	001-001	35	1866	108.3	274	1	0	0
hand	hold	001-001	36	1854	120.0	74	4	31	1
impact	have	002-001	37	1836	35.7	0	0	0	0
attention	draw	001-001	38	1789	359.9	274	1	0	0
contribution	make	002-001	39	1782	139.0	166	2	0	0
baby	have	001-001	40	1735	16.2	274	1	0	0
method	use	001-001	41	1719	126.2	274	1	31	1
information	provide	001-001	41	1719	122.8	274	1	0	0
attention	pay	001-001	43	1707	258.5	13	15	0	0
eye	close	001-001	44	1621	258.2	107	3	31	1
decision	take	001-001	45	1615	68.8	0	0	0	0
change	make	001-001	46	1610	37.4	274	1	0	0
statement	make	002-001	47	1601	88.2	166	2	0	0
letter	write	001-001	48	1572	183.3	274	1	0	0
form	take	001-001	49	1547	45.7	166	2	0	0
progress	make	001-001	50	1539	124.3	107	3	0	0
money	make	001-001	51	1533	35.9	28	10	13	2
view	take	001-001	52	1525	52.5	74	4	0	0
information	give	001-001	53	1495	55.7	107	3	6	3
need	meet	001-001	54	1474	164.8	0	0	0	0
door	close	001-001	55	1368	250.4	107	3	0	0
opportunity	give	001-001	56	1325	91.3	74	4	31	1
book	write	001-001	57	1264	105.5	32	8	31	1
question	raise	001-001	58	1248	154.0	32	8	0	0
tax	pay	002-001	59	1243	158.3	74	4	0	0
problem	cause	001-001	60	1238	119.3	166	2	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
look	take	001-001	61	1224	82.0	55	5	31	1
hand	take	001-001	62	1214	18.7	166	2	0	0
meeting	hold	001-001	63	1184	122.0	55	5	0	0
profit	make	002-001	64	1165	69.8	74	4	0	0
advice	give	002-001	65	1159	102.6	166	2	0	0
arrangement	make	002-001	66	1122	78.2	166	2	0	0
damage	cause	001-001	67	1120	282.9	274	1	0	0
payment	make	004-001	68	1108	72.1	274	1	0	0
money	raise	001-001	69	1093	136.9	20	13	31	1
evidence	give	002-001	70	1092	59.5	166	2	0	0
choice	make	001-001	71	1085	55.9	22	12	31	1
truth	tell	001-001	72	1076	144.7	43	7	0	0
idea	get	001-001	73	1052	21.0	274	1	31	1
love	make	001-001	74	1046	51.2	166	2	0	0
agreement	reach	002-001	75	1041	187.5	274	1	0	0
reason	give	001-001	76	1031	43.2	107	3	0	0
responsibility	take	002-001	77	1018	65.1	274	1	0	0
hand	shake	001-001	78	1017	165.6	107	3	0	0
claim	make	002-001	78	1017	57.3	107	3	0	0
provision	make	004-001	80	1016	53.2	0	0	0	0
language	use	001-001	81	995	58.5	274	1	0	0
sign	show	001-001	82	982	132.9	32	8	0	0
comment	make	002-001	83	979	75.7	166	2	0	0
issue	raise	001-001	84	965	143.0	166	2	0	0
eye	open	001-001	85	961	109.5	107	3	13	2
school	leave	001-001	86	960	42.9	0	0	0	0
car	drive	001-001	87	957	142.7	166	2	0	0
detail	give	002-001	88	955	57.9	166	2	0	0
support	give	001-001	89	947	49.5	274	1	0	0
noise	make	002-001	90	931	88.1	274	1	31	1
agreement	sign	002-001	91	924	264.1	274	1	0	0
example	give	001-001	92	899	21.9	0	0	31	1
opportunity	take	001-001	93	893	44.5	0	0	0	0
letter	send	001-001	94	860	126.9	74	4	0	0
risk	take	002-001	95	845	49.3	28	10	0	0
contact	make	001-001	96	842	57.3	274	1	0	0
job	lose	001-001	97	839	92.1	15	14	0	0
friend	make	001-001	98	827	12.8	74	4	13	2
answer	give	001-001	99	799	59.8	274	1	13	2
door	shut	001-002	99	799	237.4	0	0	0	0
breath	take	002-001	101	797	87.4	0	0	0	0
conversation	have	001-001	102	793	4.9	0	0	0	0
reference	make	004-001	103	779	46.0	166	2	0	0
note	make	001-001	104	771	41.0	0	0	0	0
damage	do	001-001	105	767	18.0	74	4	0	0
job	take	001-001	106	765	14.8	74	4	0	0
application	make	003-001	107	763	28.4	0	0	0	0
notice	take	001-001	108	759	72.3	0	0	0	0
move	make	001-001	109	735	50.7	166	2	0	0
night	spend	001-001	110	734	80.8	46	6	0	0
harm	do	002-001	111	725	63.0	107	3	0	0
bell	ring	002-001	112	725	463.7	0	0	0	0
letter	receive	001-001	113	722	105.1	74	4	0	0
call	make	001-001	114	721	46.0	32	9	13	2
notice	give	001-001	115	716	82.8	274	1	0	0
computer	use	001-001	116	711	45.9	74	4	31	1
note	take	001-001	117	700	42.3	166	2	0	0
demand	make	001-001	117	700	30.1	166	2	0	0
mouth	open	001-001	119	698	164.9	107	3	0	0
film	make	001-001	120	692	30.4	55	5	0	0
birth	give	002-001	121	687	81.2	74	4	0	0
result	show	001-001	122	682	41.4	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
plan	make	001-001	122	682	15.9	0	0	0	0
emphasis	place	003-001	124	677	264.8	0	0	0	0
attention	attract	001-002	125	676	252.9	274	1	0	0
lead	take	001-001	126	673	65.6	166	2	0	0
requirement	meet	004-001	127	662	127.9	107	3	0	0
priority	give	003-001	127	662	82.4	0	0	0	0
opportunity	offer	001-001	129	658	101.7	274	1	0	0
statement	issue	002-001	130	657	217.5	0	0	0	0
basis	form	002-001	131	652	136.6	274	1	0	0
sound	make	001-001	132	651	30.4	55	5	0	0
attention	focus	001-002	132	651	264.9	166	2	0	0
offer	make	001-001	134	650	47.3	274	1	0	0
bill	pay	002-001	135	649	84.1	166	2	0	0
photograph	take	002-001	136	648	64.2	274	1	0	0
fee	pay	004-001	137	647	149.6	166	2	0	0
view	express	001-001	137	647	112.7	0	0	0	0
distinction	make	004-001	139	646	61.8	0	0	0	0
cost	pay	001-001	140	642	62.0	0	0	0	0
demand	meet	001-001	141	630	97.5	166	2	0	0
book	publish	001-001	141	630	98.3	274	1	0	0
effect	take	001-001	143	629	7.2	107	3	0	0
position	take	001-001	144	622	12.9	55	5	31	1
food	eat	001-001	145	619	123.0	166	2	13	2
chance	take	001-001	146	618	26.4	166	2	0	0
account	give	002-001	147	611	28.3	0	0	0	0
justice	do	002-001	148	604	13.2	0	0	0	0
eye	catch	001-001	149	603	87.0	274	1	0	0
seat	win	001-001	150	599	128.4	0	0	0	0
line	draw	001-001	151	597	70.2	74	4	0	0
visit	make	001-001	152	589	31.5	55	5	0	0
job	find	001-001	152	589	21.6	107	3	0	0
charge	take	002-001	152	589	23.4	274	1	0	0
appearance	make	002-001	155	587	45.3	0	0	0	0
result	produce	001-001	156	586	55.9	166	2	0	0
conclusion	draw	002-001	157	585	158.1	0	0	0	0
standard	set	001-001	158	584	77.2	274	1	0	0
tribute	pay	005-001	159	582	255.9	274	1	0	0
impact	make	002-001	160	581	39.3	0	0	31	1
lesson	learn	002-001	161	577	216.3	55	5	31	1
measure	take	001-001	162	575	33.3	274	1	0	0
talk	hold	001-001	163	573	86.8	274	1	0	0
door	lock	001-002	164	571	201.2	0	0	0	0
indication	give	004-001	165	570	95.6	0	0	0	0
start	make	001-001	165	570	35.1	0	0	0	0
comparison	make	003-001	167	568	51.9	0	0	0	0
conclusion	reach	002-001	168	563	149.5	0	0	0	0
prize	win	002-001	169	562	195.0	274	1	0	0
position	hold	001-001	170	558	45.7	274	1	0	0
skill	develop	001-001	171	557	109.1	274	1	31	1
cost	reduce	001-001	172	554	83.0	274	1	0	0
speech	make	001-001	173	553	32.9	107	3	2	4
gap	fill	002-001	174	549	279.7	0	0	0	0
message	send	001-001	175	548	128.1	28	10	13	2
assumption	make	003-001	175	548	46.7	274	1	0	0
tea	make	001-001	177	543	33.6	0	0	0	0
message	get	001-001	178	542	31.8	74	4	0	0
football	play	002-001	179	538	114.2	0	0	0	0
picture	take	001-001	180	537	21.3	0	0	0	0
recommendation	make	004-001	181	536	56.9	0	0	0	0
appointment	make	002-001	182	535	43.1	0	0	0	0
basis	provide	002-001	183	533	60.9	0	0	0	0
office	take	001-001	184	530	5.8	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
rule	apply	001-002	184	530	92.8	0	0	0	0
language	speak	001-001	186	526	72.1	46	6	31	1
advice	take	002-001	186	526	31.4	274	1	0	0
conference	hold	002-001	188	525	74.0	274	1	0	0
clothes	wear	004-001	189	520	180.8	166	2	0	0
record	keep	001-001	190	516	49.5	166	2	0	0
patient	treat	001-001	191	515	103.7	74	4	0	0
purpose	serve	001-001	191	515	113.4	107	3	0	0
letter	get	001-001	193	512	7.6	0	0	0	0
car	park	001-001	194	509	226.4	0	0	0	0
function	perform	002-002	195	507	164.7	0	0	0	0
award	win	002-001	196	505	82.1	107	3	0	0
weight	lose	002-001	197	502	107.4	46	6	0	0
song	sing	001-001	198	500	273.9	46	6	31	1
suggestion	make	002-001	199	498	43.7	0	0	0	0
turn	take	001-001	200	496	34.5	43	7	0	0
advice	offer	002-001	201	494	95.4	274	1	0	0
television	watch	001-001	202	493	122.0	166	2	0	0
rent	pay	004-001	203	487	144.5	0	0	0	0
instruction	give	002-001	204	486	55.5	166	2	0	0
injury	suffer	002-001	205	485	180.3	0	0	0	0
death	cause	001-001	206	484	73.6	107	3	0	0
paper	read	001-001	207	474	58.4	107	3	0	0
crime	commit	002-004	208	472	215.8	166	2	0	0
drug	take	002-001	209	471	26.9	32	8	0	0
answer	know	001-001	210	469	21.5	0	0	0	0
title	win	002-001	211	468	93.4	0	0	0	0
visit	pay	001-001	212	464	77.8	274	1	0	0
access	give	002-001	213	463	35.9	274	1	0	0
seat	take	001-001	213	463	25.8	0	0	31	1
contract	sign	002-001	215	462	131.0	166	2	0	0
course	run	001-001	216	457	20.7	0	0	0	0
button	press	003-001	217	448	376.7	0	0	0	0
impression	make	002-001	218	446	40.0	274	1	31	1
debt	pay	002-001	219	443	89.4	274	1	0	0
advice	seek	002-002	220	442	114.4	107	3	0	0
paper	publish	001-001	220	442	87.7	107	3	0	0
technology	use	001-001	222	441	30.5	107	3	0	0
approach	take	001-001	223	438	12.7	166	2	0	0
warning	give	002-001	223	438	57.2	0	0	0	0
remark	make	002-001	225	437	52.7	274	1	0	0
address	give	001-001	225	437	48.7	0	0	31	1
fire	set	001-001	227	436	58.5	274	1	0	0
journey	make	002-001	228	435	35.6	0	0	0	0
election	win	002-001	229	433	73.1	74	4	0	0
path	follow	002-001	230	428	76.8	274	1	0	0
tale	tell	002-001	231	427	91.8	107	3	0	0
championship	win	002-001	232	426	136.0	0	0	0	0
record	make	001-001	233	424	4.8	107	3	0	0
task	perform	002-002	234	422	137.7	166	2	0	0
view	hold	001-001	235	421	28.0	0	0	0	0
threat	pose	002-004	236	420	328.9	74	4	0	0
game	win	001-001	236	420	60.1	107	3	31	1
loss	suffer	001-001	238	418	103.9	166	2	0	0
courage	have	002-001	238	418	13.7	274	1	0	0
credit	give	002-001	240	414	38.2	166	2	0	0
initiative	take	004-001	240	414	37.9	0	0	0	0
living	make	004-001	242	410	37.8	274	1	0	0
answer	get	001-001	242	410	13.2	274	1	0	0
language	learn	001-001	242	410	64.7	0	0	13	2
matter	discuss	001-001	245	408	69.8	0	0	0	0
goal	achieve	001-001	246	402	101.8	55	5	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
dividend	pay	004-001	246	402	144.0	274	1	0	0
holiday	take	002-001	246	402	21.2	0	0	0	0
evidence	find	002-001	249	398	18.0	43	7	0	0
treatment	receive	002-001	250	396	72.8	0	0	0	0
route	take	002-001	251	395	25.9	0	0	0	0
eye	shut	001-002	252	394	99.7	0	0	0	0
permission	give	003-001	253	393	61.2	0	0	0	0
film	see	001-001	254	391	13.1	166	2	0	0
breath	draw	002-001	254	391	130.0	0	0	0	0
connection	make	002-001	256	390	24.3	0	0	0	0
mark	make	001-001	257	389	12.1	274	1	0	0
pleasure	give	002-001	257	389	44.0	0	0	0	0
lip	bite	002-002	259	387	377.7	0	0	0	0
principle	apply	002-002	259	387	78.5	0	0	0	0
sight	catch	001-001	261	385	133.3	0	0	0	0
risk	run	002-001	262	384	53.7	166	2	0	0
plant	grow	001-001	262	384	77.0	0	0	0	0
assessment	make	004-001	264	383	21.5	274	1	0	0
example	follow	001-001	264	383	17.6	274	1	0	0
treaty	sign	003-001	266	379	182.8	0	0	0	0
investment	make	004-001	267	378	11.3	107	3	0	0
trip	make	001-001	268	376	28.8	74	4	0	0
window	open	001-001	268	376	59.0	274	1	0	0
grip	get	003-001	270	374	58.3	0	0	0	0
proposal	make	004-001	271	368	13.0	0	0	0	0
foundation	lay	003-001	272	365	177.7	0	0	0	0
announcement	make	003-001	272	365	46.5	0	0	0	0
impression	get	002-001	274	364	30.6	0	0	0	0
war	fight	001-001	275	363	67.9	15	14	0	0
pattern	follow	001-001	276	362	41.4	0	0	0	0
battle	fight	002-001	277	361	144.5	274	1	0	0
breath	hold	002-001	277	361	79.3	274	1	0	0
rule	make	001-001	279	360	92.8	274	1	0	0
procedure	follow	004-001	280	359	49.5	0	0	0	0
cigarette	light	002-001	281	358	373.4	0	0	0	0
sight	lose	001-001	282	356	86.8	274	1	31	1
access	gain	002-002	282	356	131.2	274	1	0	0
tool	use	002-001	284	355	45.6	0	0	0	0
chat	have	003-001	284	355	25.3	0	0	0	0
coffee	make	002-001	286	352	23.2	274	1	0	0
difficulty	face	001-001	286	352	81.5	0	0	0	0
horse	ride	001-001	288	348	152.3	0	0	0	0
concession	make	004-001	289	347	56.9	0	0	0	0
card	play	001-001	290	345	58.7	274	1	0	0
lecture	give	002-001	290	345	55.2	0	0	0	0
success	achieve	001-001	292	343	73.6	274	1	0	0
campaign	launch	002-004	293	341	141.3	274	1	0	0
poem	write	002-001	293	341	91.8	0	0	0	0
walk	take	001-001	295	340	32.3	0	0	0	0
precaution	take	006-001	296	337	92.1	0	0	0	0
skill	learn	001-001	296	337	72.4	0	0	0	0
wage	pay	002-001	296	337	69.7	0	0	0	0
adjustment	make	004-001	299	334	49.5	274	1	0	0
damage	suffer	001-001	300	332	107.2	274	1	0	0
commitment	make	004-001	301	331	19.3	274	1	0	0
protection	give	002-001	301	331	27.4	0	0	0	0
lie	tell	001-001	303	330	89.0	0	0	0	0
trouble	cause	001-001	303	330	79.5	0	0	0	0
promise	make	001-001	305	328	35.4	107	3	0	0
responsibility	accept	002-001	305	328	70.1	166	2	0	0
homework	do	006-001	307	326	48.6	274	1	0	0
distinction	draw	004-001	308	325	108.2	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
error	make	003-001	309	324	22.1	166	2	0	0
living	earn	004-002	309	324	230.5	274	1	0	0
toll	take	006-001	311	323	86.9	166	2	0	0
gesture	make	002-001	311	323	42.3	0	0	0	0
attack	launch	001-004	313	321	131.5	55	5	0	0
ticket	get	002-001	314	320	26.3	0	0	0	0
club	join	001-001	315	319	55.1	0	0	31	1
picture	paint	001-001	316	318	133.6	274	1	0	0
shape	take	001-001	317	317	19.2	274	1	0	0
complaint	make	004-001	317	317	27.3	0	0	0	0
fortune	make	003-001	319	316	36.8	55	5	0	0
suicide	commit	003-004	319	316	315.8	107	3	0	0
vote	cast	001-002	321	312	204.2	274	1	0	0
mention	make	001-001	321	312	54.8	0	0	0	0
harm	cause	002-001	323	311	159.1	0	0	0	0
coffee	drink	002-001	324	310	159.5	274	1	0	0
appeal	make	002-001	324	310	9.4	0	0	0	0
suit	follow	002-001	326	309	79.3	107	3	0	0
conference	attend	002-002	327	306	104.1	0	0	0	0
aim	achieve	002-001	328	305	92.3	0	0	0	0
silence	break	002-001	329	304	104.8	0	0	0	0
hair	cut	001-001	330	303	61.9	274	1	31	1
opinion	express	001-001	331	301	97.9	0	0	0	0
protection	provide	002-001	332	299	45.6	0	0	0	0
cash	pay	002-001	333	298	54.9	0	0	0	0
payment	receive	004-001	334	297	62.6	274	1	0	0
corner	turn	001-001	334	297	48.0	0	0	0	0
battle	win	002-001	336	296	76.2	274	1	31	1
subject	change	001-001	336	296	28.3	274	1	0	0
glimpse	catch	005-001	338	295	267.2	274	1	0	0
cut	make	001-001	338	295	19.8	274	1	0	0
price	increase	001-001	338	295	38.2	0	0	0	0
tree	plant	001-001	341	294	167.3	274	1	0	0
meeting	call	001-001	341	294	21.2	0	0	0	0
break	take	001-001	343	293	30.4	274	1	0	0
bid	make	004-001	343	293	29.1	274	1	0	0
request	make	002-001	345	292	22.0	0	0	0	0
tea	drink	001-001	346	291	130.8	166	2	0	0
advance	make	002-001	346	291	23.2	0	0	0	0
challenge	face	001-001	348	290	98.9	107	3	0	0
influence	exert	001-005	348	290	302.2	0	0	0	0
survey	conduct	002-002	350	289	141.9	274	1	0	0
meal	eat	001-001	350	289	103.7	0	0	0	0
song	write	001-001	352	288	57.4	15	14	0	0
force	use	001-001	352	288	27.5	25	11	0	0
copy	make	002-001	352	288	12.1	166	2	0	0
law	pass	001-001	355	287	33.3	74	4	0	0
nightmare	have	003-001	356	286	7.8	0	0	0	0
secret	keep	001-001	357	285	73.4	107	3	0	0
pace	keep	003-001	357	285	74.3	274	1	0	0
answer	provide	001-001	359	284	32.2	0	0	0	0
test	take	001-001	360	283	3.9	55	5	0	0
tax	raise	002-001	360	283	47.5	74	4	0	0
ball	hit	001-001	362	282	100.0	0	0	0	0
throat	clear	002-001	363	281	227.2	0	0	31	1
peak	reach	003-001	363	281	104.9	0	0	0	0
cigarette	smoke	002-002	365	280	321.0	274	1	0	0
mess	make	003-001	366	278	42.3	0	0	0	0
pride	take	002-001	367	277	38.4	0	0	13	2
price	cut	001-001	368	274	36.4	107	3	0	0
fuss	make	006-001	368	274	71.5	0	0	0	0
explanation	give	002-001	370	273	26.2	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
anniversary	celebrate	003-002	370	273	350.1	0	0	0	0
discovery	make	002-001	372	271	27.5	107	3	0	0
family	support	001-001	372	271	23.2	166	2	0	0
train	take	001-001	372	271	14.4	274	1	31	1
birthday	celebrate	002-002	372	271	277.0	0	0	0	0
anniversary	mark	003-001	376	269	232.0	0	0	0	0
ticket	buy	002-001	376	269	82.6	0	0	0	0
shoulder	shrug	001-003	378	268	205.7	274	1	0	0
curtain	draw	002-001	378	268	110.4	0	0	0	0
golf	play	003-001	380	267	79.4	274	1	0	0
pain	feel	001-001	381	266	36.5	55	5	0	0
call	get	001-001	381	266	8.9	107	3	0	0
insight	give	004-001	381	266	51.8	274	1	0	0
note	write	001-001	384	264	37.6	0	0	0	0
criterion	meet	004-001	385	263	66.4	0	0	0	0
resolution	pass	004-001	386	262	96.4	274	1	0	0
voice	raise	001-001	387	261	42.8	274	1	0	0
water	drink	001-001	387	261	52.2	0	0	31	1
breath	catch	002-001	389	260	107.8	274	1	0	0
technique	develop	002-001	389	260	53.7	274	1	0	0
leave	take	001-001	389	260	42.3	274	1	0	0
property	sell	002-001	392	257	42.8	0	0	0	0
permission	grant	003-002	393	254	183.8	0	0	0	0
concern	cause	001-001	393	254	52.6	0	0	0	0
premium	pay	004-001	395	252	101.3	107	3	0	0
record	break	001-001	395	252	40.8	0	0	0	0
temper	lose	005-001	397	251	148.9	0	0	0	0
invitation	accept	003-001	397	251	131.2	0	0	0	0
deal	make	001-001	399	250	3.5	74	4	0	0
joke	make	002-001	400	248	26.6	166	2	31	1
trip	take	001-001	401	247	19.0	107	3	0	0
fire	start	001-001	401	247	29.6	274	1	0	0
fool	make	002-001	401	247	39.0	0	0	0	0
bridge	cross	002-001	404	245	123.7	0	0	0	0
intercourse	have	006-001	405	243	14.9	274	1	0	0
hole	make	001-001	405	243	11.1	0	0	0	0
track	keep	002-001	407	241	38.5	55	5	0	0
description	give	003-001	407	241	21.3	0	0	0	0
technology	develop	001-001	409	240	42.7	166	2	0	0
resemblance	bear	006-001	409	240	235.0	274	1	0	0
route	follow	002-001	409	240	38.0	0	0	0	0
property	buy	002-001	412	238	34.5	0	0	0	0
recording	make	004-001	412	238	22.8	0	0	0	0
explanation	offer	002-001	414	237	58.0	0	0	0	0
seat	lose	001-001	414	237	44.7	0	0	0	0
heart	break	001-001	416	236	45.0	46	6	0	0
excuse	make	002-001	416	236	32.3	0	0	0	0
fish	catch	001-001	418	235	64.8	0	0	0	0
prayer	say	003-001	418	235	17.7	0	0	0	0
fee	charge	004-002	420	234	128.7	107	3	0	0
refuge	take	006-001	420	234	58.2	274	1	0	0
expense	incur	004-005	420	234	286.2	0	0	0	0
legislation	introduce	004-001	420	234	79.3	0	0	0	0
experience	share	001-001	420	234	47.4	0	0	0	0
medal	win	003-001	425	232	129.4	0	0	0	0
peace	make	001-001	426	231	6.6	107	3	0	0
bill	pass	002-001	426	231	39.6	166	2	31	1
possibility	consider	002-001	426	231	44.5	274	1	0	0
tax	increase	002-001	426	231	37.9	274	1	0	0
status	give	002-001	426	231	14.1	274	1	0	0
temptation	resist	005-003	426	231	396.5	0	0	0	0
mouth	shut	001-002	426	231	118.1	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
watch	keep	001-001	433	229	62.8	274	1	0	0
article	publish	002-001	433	229	71.5	0	0	0	0
production	increase	002-001	433	229	40.8	0	0	0	0
presentation	make	003-001	433	229	20.3	0	0	0	0
insight	provide	004-001	437	226	71.8	0	0	0	0
gate	open	002-001	438	224	69.1	0	0	0	0
possession	take	003-001	438	224	22.4	0	0	0	0
tennis	play	002-001	440	223	73.0	166	2	31	1
fire	catch	001-001	440	223	51.8	274	1	0	0
efficiency	improve	003-001	440	223	120.0	0	0	0	0
essay	write	003-001	443	221	78.0	0	0	0	0
recovery	make	004-001	443	221	19.0	0	0	0	0
discretion	exercise	004-001	445	220	251.4	0	0	0	0
salary	pay	003-001	445	220	71.1	0	0	0	0
approval	give	004-001	447	218	27.7	274	1	0	0
prisoner	take	002-001	448	217	19.2	0	0	0	0
turn	make	001-001	448	217	6.0	0	0	0	0
challenge	meet	001-001	450	216	48.6	0	0	0	0
fact	face	001-001	451	215	21.8	0	0	0	0
message	leave	001-001	452	214	25.7	166	2	0	0
river	cross	001-001	452	214	84.2	0	0	0	0
pressure	increase	001-001	452	214	40.4	0	0	0	0
prediction	make	004-001	452	214	36.3	0	0	0	0
reply	receive	001-001	456	213	77.0	0	0	0	0
pain	cause	001-001	456	213	54.7	0	0	0	0
tax	cut	002-001	458	212	35.6	74	4	0	0
judgment	make	003-001	458	212	18.2	274	1	0	0
table	set	001-001	458	212	16.8	0	0	0	0
exercise	take	001-001	461	211	9.5	0	0	31	1
responsibility	assume	002-002	461	211	61.2	0	0	0	0
allegation	make	004-001	463	210	28.8	0	0	0	0
call	receive	001-001	464	209	45.4	74	4	0	0
stone	throw	001-001	464	209	63.4	0	0	0	0
shoe	wear	002-001	466	206	87.0	274	1	0	0
improvement	show	003-001	466	206	31.1	274	1	0	0
requirement	satisfy	004-002	466	206	139.4	0	0	0	0
boat	take	001-001	466	206	10.3	0	0	0	0
encouragement	give	005-001	470	205	48.9	0	0	0	0
attitude	take	001-001	470	205	4.4	0	0	0	0
video	watch	001-001	472	204	56.4	166	2	0	0
crop	grow	002-001	472	204	92.9	0	0	0	0
purchase	make	002-001	472	204	17.0	0	0	0	0
opinion	give	001-001	475	203	11.4	274	1	0	0
gap	bridge	002-002	475	203	492.9	0	0	0	0
message	receive	001-001	475	203	44.6	0	0	0	0
victory	win	002-001	478	202	54.9	274	1	0	0
inquiry	make	004-001	478	202	14.8	0	0	0	0
document	sign	003-001	480	201	73.4	166	2	0	0
intention	announce	004-002	480	201	77.5	274	1	0	0
passenger	carry	002-001	482	199	56.4	166	2	0	0
study	conduct	001-002	483	198	50.3	107	3	0	0
surgery	undergo	003-004	483	198	265.8	166	2	0	0
legislation	pass	004-001	483	198	55.8	0	0	0	0
stance	take	004-001	483	198	33.7	0	0	0	0
bomb	explode	002-003	487	197	276.9	274	1	0	0
date	set	001-001	488	196	17.7	74	4	0	0
bus	take	001-001	488	196	10.4	0	0	0	0
preparation	make	003-001	490	195	14.2	0	0	0	0
duty	perform	002-002	491	194	64.4	107	3	0	0
gap	leave	002-001	491	194	36.4	0	0	0	0
arrest	make	002-001	493	193	25.7	274	1	0	0
seed	sow	×	493	193	461.8	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
shot	take	002-001	495	192	14.5	107	3	0	0
goal	set	001-001	495	192	27.1	0	0	0	0
husband	leave	001-001	497	191	17.2	166	2	0	0
touch	lose	001-001	497	191	50.3	0	0	0	0
strike	call	001-001	497	191	36.9	0	0	0	0
interview	give	002-001	500	190	15.1	274	1	0	0
height	reach	002-001	500	190	62.3	0	0	0	0
order	keep	001-001	500	190	9.1	0	0	0	0
peace	keep	001-001	503	189	26.1	46	6	0	0
lead	follow	001-001	503	189	36.3	107	3	0	0
dispute	resolve	004-004	503	189	156.2	0	0	0	0
warning	issue	002-001	503	189	108.8	0	0	0	0
distance	keep	001-001	503	189	29.5	0	0	0	0
gun	fire	001-001	508	188	155.2	166	2	0	0
stop	put	001-001	508	188	48.2	274	1	0	0
lesson	give	002-001	508	188	20.9	0	0	31	1
ball	play	001-001	508	188	30.7	0	0	0	0
meal	make	001-001	508	188	7.1	0	0	0	0
hole	drill	001-003	513	186	234.6	0	0	0	0
class	attend	001-002	513	186	40.3	0	0	0	0
knee	bend	002-002	515	185	170.0	0	0	0	0
flag	fly	003-001	515	185	154.4	0	0	0	0
weekend	spend	002-001	517	184	47.5	107	3	0	0
lip	lick	002-006	157	184	276.9	0	0	31	1
tooth	grit	003-007	517	184	525.5	0	0	0	0
prize	award	002-002	517	184	178.3	0	0	0	0
meal	cook	001-002	517	184	131.0	0	0	0	0
proposal	reject	004-003	517	184	74.9	0	0	0	0
impression	create	002-001	517	184	60.5	0	0	0	0
video	show	001-001	517	184	24.6	0	0	0	0
opportunity	miss	001-001	525	183	46.2	166	2	0	0
comeback	make	007-001	525	183	56.4	274	1	0	0
sacrifice	make	003-001	525	183	38.4	274	1	0	0
protection	offer	002-001	528	181	37.3	107	3	0	0
advantage	gain	002-002	529	181	64.7	0	0	0	0
delivery	take	004-001	529	181	16.2	0	0	0	0
hypothesis	test	004-001	531	180	159.2	0	0	0	0
accident	cause	001-001	531	180	45.0	0	0	0	0
guidance	provide	004-001	533	179	45.2	274	1	0	0
lip	purse	002-006	533	179	557.5	0	0	0	0
gap	close	002-001	533	179	81.9	0	0	0	0
exhibition	hold	002-001	533	179	30.5	0	0	0	0
fist	clench	×	537	178	717.0	0	0	0	0
stand	take	001-001	538	177	23.4	74	4	0	0
journal	publish	004-001	538	177	94.9	274	1	0	0
signal	send	002-001	538	177	55.8	274	1	0	0
permission	refuse	003-001	538	177	103.1	0	0	0	0
final	reach	001-001	542	176	65.9	274	1	0	0
proposal	accept	004-001	542	176	37.4	0	0	0	0
trick	play	002-001	544	175	65.0	274	1	0	0
permission	ask	003-001	544	175	40.0	274	1	0	0
pain	take	001-001	546	174	5.6	166	2	0	0
engine	start	002-001	546	174	32.5	0	0	0	0
interview	conduct	002-002	548	171	102.1	274	1	0	0
train	catch	001-001	548	171	53.0	0	0	31	1
threat	make	002-001	548	171	4.8	0	0	0	0
dispute	settle	004-002	551	170	105.5	166	2	0	0
bag	pack	001-002	551	170	123.9	274	1	0	0
distress	cause	005-001	553	169	106.7	274	1	0	0
root	take	002-001	553	169	13.2	274	1	0	0
bridge	build	002-001	553	169	43.6	0	0	0	0
incentive	provide	004-001	556	168	50.8	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
candle	light	003-001	556	168	258.9	0	0	0	0
signal	give	002-001	556	168	17.7	0	0	0	0
credit	get	002-001	559	167	3.0	55	5	0	0
lesson	teach	002-001	559	167	84.1	107	3	0	0
video	make	001-001	559	167	3.3	166	2	0	0
diary	keep	002-001	559	167	49.8	0	0	0	0
sigh	give	002-001	559	167	46.6	0	0	0	0
referendum	hold	004-001	564	166	66.0	274	1	0	0
balance	strike	002-001	564	166	72.3	0	0	0	0
photo	take	003-001	566	163	24.9	107	3	2	4
break	make	001-001	567	163	10.8	107	3	0	0
fear	express	001-001	567	163	50.8	0	0	0	0
future	plan	001-001	567	163	34.9	0	0	0	0
limit	impose	001-004	570	162	88.7	0	0	0	0
emphasis	put	003-001	570	162	24.3	0	0	0	0
donation	make	005-001	572	161	28.8	0	0	31	1
offence	take	004-001	572	161	8.2	0	0	0	0
conversation	make	001-001	572	161	5.3	0	0	0	0
lesson	take	002-001	575	160	12.0	55	5	31	1
sentence	impose	001-004	575	160	74.8	166	2	0	0
dilemma	face	005-001	575	160	118.7	274	1	0	0
difficulty	present	001-001	575	160	37.5	0	0	0	0
wine	make	002-001	575	160	3.4	0	0	0	0
dimension	add	004-001	580	159	59.8	274	1	0	0
flight	take	002-001	580	159	7.5	274	1	0	0
trophy	win	005-001	580	159	88.6	0	0	0	0
injunction	grant	006-002	583	158	206.8	0	0	0	0
beer	drink	003-001	584	157	106.7	274	1	0	0
confusion	cause	003-001	584	157	69.2	0	0	0	0
belief	hold	002-001	584	156	24.0	274	1	0	0
alarm	raise	003-001	584	156	79.5	0	0	0	0
speech	give	001-001	588	155	7.0	32	9	13	2
battle	lose	002-001	588	155	35.4	274	1	0	0
movie	make	001-001	590	154	15.2	28	10	0	0
act	commit	001-004	590	154	38.3	274	1	0	0
hint	give	003-001	590	154	30.7	274	1	0	0
resolution	adopt	004-002	590	154	86.5	0	0	0	0
transition	make	004-001	590	154	15.9	0	0	0	0
vehicle	drive	002-001	595	153	48.8	274	1	0	0
response	receive	002-001	595	153	23.1	0	0	0	0
joke	tell	002-001	597	152	30.9	166	2	0	0
prominence	give	007-001	597	152	58.5	0	0	0	0
tablet	take	005-001	599	151	31.4	0	0	31	1
insight	gain	004-002	599	151	120.2	0	0	0	0
exam	pass	003-001	599	151	94.0	0	0	0	0
objection	raise	004-001	599	151	72.5	0	0	0	0
date	fix	001-002	599	151	55.2	0	0	0	0
guarantee	give	004-001	604	149	26.7	0	0	0	0
direction	change	001-001	604	149	26.1	0	0	0	0
check	make	001-001	604	149	15.4	0	0	0	0
reward	offer	002-001	607	148	55.6	107	3	0	0
promise	keep	001-001	607	148	36.5	107	3	0	0
bus	catch	001-001	607	148	50.9	0	0	13	2
booking	make	005-001	607	148	25.1	0	0	0	0
possibility	raise	002-001	611	146	34.3	0	0	0	0
competition	face	002-001	612	145	36.4	274	1	0	0
sentence	pass	001-001	612	145	35.5	274	1	0	0
newspaper	publish	001-001	612	145	47.9	0	0	0	0
crisis	face	002-001	612	145	47.2	0	0	0	0
doubt	express	001-001	612	145	39.4	0	0	0	0
poetry	write	002-001	617	144	45.9	166	2	0	0
murder	commit	002-004	617	144	80.2	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
ship	sail	001-002	617	144	118.2	0	0	0	0
leg	cross	001-001	617	144	55.6	0	0	0	0
wheel	turn	002-001	617	144	34.4	0	0	0	0
plea	make	005-001	617	144	23.4	0	0	0	0
influence	use	001-001	623	143	7.0	166	2	0	0
blow	strike	002-001	623	143	122.1	274	1	0	0
nose	blow	002-002	623	143	107.0	0	0	0	0
revenue	raise	004-001	623	143	46.8	0	0	0	0
gift	give	002-001	627	142	14.0	166	2	0	0
alliance	form	004-001	627	142	58.5	274	1	0	0
petition	present	004-001	627	142	105.9	0	0	0	0
fine	pay	001-001	627	142	75.7	0	0	0	0
speech	deliver	001-002	627	142	64.6	0	0	0	0
proceeding	bring	004-001	627	142	32.9	0	0	0	0
farm	work	001-001	627	142	14.9	0	0	0	0
knot	tie	005-002	634	141	223.4	274	1	0	0
oath	take	007-001	635	140	41.4	274	1	0	0
treaty	ratify	003-007	635	140	264.2	0	0	0	0
shadow	cast	002-002	635	140	152.3	0	0	0	0
award	receive	002-001	638	139	31.2	0	0	0	0
dose	give	004-001	638	139	23.9	0	0	0	0
preference	give	003-001	638	139	19.0	0	0	0	0
border	cross	002-001	641	138	81.0	166	2	0	0
performance	give	001-001	641	138	13.9	0	0	0	0
definition	give	004-001	643	137	9.4	166	2	0	0
precedent	set	006-001	643	137	68.8	274	1	0	0
calculation	make	004-001	643	137	15.8	274	1	0	0
certificate	issue	004-001	643	137	86.8	0	0	0	0
product	market	001-001	647	136	79.4	274	1	0	0
decree	issue	005-001	647	136	165.5	0	0	0	0
edition	publish	004-001	647	136	74.7	0	0	0	0
pattern	set	001-001	647	136	12.9	0	0	0	0
stock	sell	002-001	651	135	29.8	166	2	0	0
pill	take	005-001	651	135	29.5	274	1	0	0
injection	give	005-001	651	135	32.4	0	0	0	0
ladder	climb	003-001	654	134	163.9	166	2	0	0
error	correct	003-002	655	133	140.8	0	0	0	0
bone	break	002-001	656	131	47.1	0	0	0	0
enemy	make	002-001	657	130	5.7	274	1	0	0
warrant	issue	005-001	657	130	155.4	0	0	0	0
postcard	send	006-001	657	130	97.3	0	0	0	0
witness	call	002-001	657	130	31.2	0	0	0	0
shock	get	002-001	657	130	6.3	0	0	0	0
shot	get	002-001	662	129	4.6	74	4	0	0
damage	repair	001-002	662	129	109.6	274	1	31	1
access	deny	002-002	662	129	49.8	274	1	0	0
petition	sign	004-001	662	129	119.7	0	0	0	0
disruption	cause	006-001	662	129	101.6	0	0	0	0
output	increase	004-001	662	129	38.5	0	0	0	0
teacher	train	001-001	662	129	38.2	0	0	0	0
load	carry	003-001	662	129	37.9	0	0	0	0
offence	cause	004-001	662	129	37.8	0	0	0	0
conflict	resolve	002-004	671	128	82.4	274	1	0	0
efficiency	increase	003-001	671	128	50.6	274	1	0	0
medal	award	003-002	671	128	199.7	0	0	0	0
reply	get	001-001	671	128	8.3	0	0	0	0
target	hit	002-001	671	127	43.3	274	1	0	0
title	defend	002-003	671	127	61.8	0	0	0	0
publicity	give	004-001	671	127	20.1	0	0	0	0
delivery	make	004-001	671	127	6.8	0	0	0	0
defeat	suffer	002-001	679	126	68.3	274	1	0	0
strain	put	003-001	679	126	27.9	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
steel	make	003-001	679	126	6.8	0	0	0	0
priority	take	003-001	679	126	5.7	0	0	0	0
halt	call	004-001	683	125	55.2	274	1	0	0
order	maintain	001-002	683	125	20.2	274	1	0	0
character	play	001-001	683	125	14.2	274	1	0	0
sanction	impose	005-004	686	124	135.9	0	0	0	0
throat	cut	002-001	686	124	54.4	0	0	0	0
criterion	apply	004-002	686	124	40.3	0	0	0	0
whistle	blow	003-002	689	123	232.4	274	1	6	3
apology	make	005-001	689	123	22.8	274	1	0	0
coalition	form	004-001	689	123	61.3	0	0	0	0
poem	read	002-001	689	123	38.0	0	0	0	0
escape	make	001-001	689	123	14.9	0	0	0	0
mask	wear	003-001	694	122	92.9	274	1	0	0
mountain	climb	001-001	694	122	71.2	274	1	0	0
grip	tighten	003-004	696	121	253.5	0	0	0	0
anger	feel	002-001	696	121	26.9	0	0	0	0
tape	play	002-001	696	121	24.2	0	0	0	0
balance	keep	002-001	699	120	14.8	0	0	31	1
desire	express	002-001	699	120	48.8	0	0	0	0
tape	make	002-001	699	120	11.8	0	0	0	0
objection	make	004-001	699	120	11.1	0	0	0	0
bath	take	002-001	699	120	7.3	0	0	0	0
obligation	meet	004-001	704	119	32.5	274	1	0	0
ban	impose	002-004	704	119	102.7	0	0	0	0
declaration	make	003-001	704	119	12.7	0	0	0	0
habit	make	002-001	704	119	6.5	0	0	0	0
revenge	take	006-001	708	118	27.0	166	2	0	0
prisoner	hold	002-001	708	118	24.4	0	0	0	0
stand	make	001-001	708	118	11.2	0	0	0	0
clue	provide	003-001	711	117	37.8	274	1	0	0
preference	express	003-001	711	117	65.3	0	0	0	0
seminar	hold	004-001	711	117	40.5	0	0	0	0
incentive	give	004-001	714	116	19.0	274	1	0	0
diagnosis	make	004-001	714	116	14.9	274	1	0	0
comfort	take	002-001	714	116	11.7	274	1	0	0
compromise	reach	004-001	714	116	61.2	0	0	0	0
glance	cast	002-002	718	115	135.7	274	1	0	0
stress	cause	001-001	718	115	41.0	0	0	0	0
courage	take	002-001	718	115	16.1	0	0	0	0
exception	make	003-001	721	114	4.5	274	1	0	0
bike	ride	003-001	721	114	118.0	0	0	0	0
hope	raise	001-001	721	114	27.8	0	0	0	0
pattern	establish	001-002	724	113	20.1	166	2	0	0
penalty	impose	004-004	724	113	79.9	0	0	0	0
tune	play	003-001	724	113	46.6	0	0	0	0
proposal	support	004-001	724	113	23.5	0	0	0	0
fault	find	002-001	724	113	14.2	0	0	0	0
reputation	establish	003-002	729	112	45.5	0	0	0	0
wall	paint	001-001	729	112	43.2	0	0	0	0
lamp	light	003-001	731	111	149.0	0	0	0	0
prisoner	release	002-002	731	111	64.2	0	0	0	0
deadline	meet	005-001	733	110	62.2	0	0	0	0
command	take	002-001	733	110	7.1	0	0	0	0
climax	reach	007-001	735	109	98.3	274	1	0	0
ride	take	001-001	735	109	15.3	274	1	0	0
measurement	take	004-001	735	109	10.0	274	1	0	0
receiver	replace	004-002	735	109	82.7	0	0	0	0
egg	beat	002-001	735	109	52.6	0	0	0	0
ban	lift	002-001	740	108	89.5	166	2	0	0
drawer	open	003-001	740	108	63.5	166	2	0	0
bomb	plant	002-001	740	108	119.1	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
allegation	deny	004-002	740	108	93.8	274	1	0	0
pace	set	003-001	740	108	29.8	0	0	31	1
asylum	seek	005-002	740	108	90.6	0	0	0	0
file	open	003-001	740	108	23.6	0	0	0	0
burden	carry	003-001	747	107	36.8	274	1	0	0
pain	ease	001-002	748	106	84.0	274	1	0	0
fare	pay	005-001	748	106	49.0	274	1	0	0
image	improve	001-001	748	106	31.0	274	1	0	0
reputation	gain	003-002	748	106	62.2	0	0	31	1
trail	leave	003-001	748	106	37.2	0	0	0	0
wine	produce	002-001	753	105	20.9	274	1	0	0
prize	take	002-001	753	105	6.0	0	0	0	0
experiment	conduct	002-002	755	104	66.5	166	2	0	0
lift	get	001-001	755	104	8.3	274	1	0	0
sigh	breathe	002-002	755	104	190.5	0	0	0	0
boat	sail	001-002	755	104	82.4	0	0	0	0
message	deliver	001-002	759	103	46.4	166	2	31	1
guideline	follow	004-001	760	102	30.0	274	1	0	0
refuge	seek	006-002	760	102	86.2	0	0	0	0
spending	increase	004-001	760	102	40.4	0	0	0	0
grass	cut	002-001	760	102	38.2	0	0	0	0
competition	hold	002-001	760	102	10.3	0	0	0	0
lecture	attend	002-002	765	101	65.0	0	0	31	1
prize	receive	002-001	765	101	32.2	0	0	31	1
suspicion	arouse	004-005	765	101	206.8	0	0	0	0
verdict	return	004-001	765	101	58.6	0	0	0	0
gun	carry	001-001	769	100	51.5	274	1	0	0
glance	shoot	002-002	769	100	81.2	0	0	0	0
jump	make	001-001	769	100	20.4	0	0	0	0
delight	take	003-001	769	100	13.2	0	0	0	0
respect	show	001-001	773	99	6.7	107	3	0	0
portrait	paint	003-001	773	99	105.5	274	1	0	0
request	refuse	002-001	773	99	45.7	274	1	0	0
stock	buy	002-001	773	99	18.0	274	1	0	0
kick	get	002-001	773	99	13.0	274	1	0	0
pipe	smoke	002-002	773	99	110.0	0	0	0	0
admission	make	004-001	773	99	7.1	0	0	0	0
stance	adopt	004-002	780	98	85.3	0	0	0	0
approval	win	004-001	780	98	32.3	0	0	0	0
sack	get	003-001	780	98	17.5	0	0	0	0
medicine	take	002-001	780	98	7.3	0	0	0	0
havoc	wreak	×	784	97	1396.3	0	0	0	0
chaos	cause	004-001	784	97	58.2	0	0	0	0
destination	reach	003-001	784	97	57.5	0	0	0	0
rally	hold	004-001	784	97	37.4	0	0	0	0
landing	make	003-001	784	97	11.2	0	0	0	0
imagination	capture	002-003	789	96	118.0	274	1	0	0
anxiety	cause	003-001	789	96	40.2	274	1	0	0
desire	feel	002-001	789	96	13.2	0	0	0	0
comfort	give	002-001	789	96	12.2	0	0	0	0
wish	make	001-001	789	96	6.4	0	0	0	0
fine	impose	001-004	794	95	126.3	0	0	0	0
muscle	relax	002-002	794	95	95.8	0	0	0	0
entertainment	provide	003-001	794	95	27.9	0	0	0	0
sympathy	feel	003-001	794	95	25.1	0	0	0	0
button	push	003-001	798	94	64.8	166	2	13	2
feedback	give	005-001	798	94	22.2	0	0	0	0
reward	reap	002-008	800	93	279.7	274	1	0	0
recognition	gain	003-002	800	93	43.9	0	0	0	0
entrance	make	002-001	800	93	5.0	0	0	0	0
exam	take	003-001	803	92	14.9	274	1	0	0
cake	bake	002-006	803	92	175.6	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
emotion	show	002-001	805	91	18.7	166	2	0	0
alarm	sound	003-001	805	91	66.7	274	1	0	0
topic	discuss	002-001	805	91	37.6	274	1	0	0
faith	keep	002-001	805	91	15.3	274	1	0	0
settlement	reach	003-001	805	91	25.8	0	0	0	0
welcome	give	001-001	805	91	24.9	0	0	0	0
bite	take	002-001	805	91	21.4	0	0	0	0
hostage	take	006-001	805	91	18.9	0	0	0	0
headache	get	005-001	805	91	16.2	0	0	0	0
rate	lower	001-003	814	90	34.0	0	0	0	0
rate	fix	001-002	814	90	23.7	0	0	0	0
faith	lose	002-001	814	90	23.2	0	0	0	0
guess	make	001-001	814	90	21.1	0	0	0	0
confession	make	006-001	814	90	19.9	0	0	0	0
profile	keep	004-001	819	89	23.3	166	2	0	0
burden	bear	003-001	819	89	42.1	274	1	0	0
intention	declare	004-002	819	89	49.0	0	0	0	0
trace	leave	002-001	819	89	26.1	0	0	0	0
breakthrough	make	006-001	819	89	21.0	0	0	0	0
scholarship	win	005-001	824	88	58.8	0	0	0	0
fate	suffer	003-001	824	88	57.7	0	0	0	0
nest	build	003-001	824	88	46.7	0	0	0	0
coverage	give	004-001	824	88	13.7	0	0	0	0
data	process	002-001	828	87	42.8	274	1	0	0
oath	swear	007-004	828	87	246.1	0	0	0	0
consciousness	regain	003-005	828	87	169.7	0	0	0	0
chess	play	007-001	828	87	61.9	0	0	0	0
embarrassment	cause	005-001	828	87	58.0	0	0	0	0
controversy	cause	004-001	828	87	44.7	0	0	0	0
shelter	provide	003-001	828	87	31.9	0	0	0	0
map	draw	002-001	828	87	24.7	0	0	0	0
appeal	lose	002-001	828	87	13.2	0	0	0	0
presentation	give	003-001	828	87	7.8	0	0	0	0
seed	plant	002-001	838	86	103.8	107	3	0	0
marathon	run	006-001	838	86	45.7	0	0	2	4
patience	lose	005-001	838	86	52.5	0	0	0	0
bond	issue	003-001	838	86	48.4	0	0	0	0
emotion	express	002-001	838	86	45.8	0	0	0	0
phase	enter	003-001	838	86	31.6	0	0	0	0
accusation	make	005-001	838	86	15.2	0	0	0	0
spell	cast	002-002	845	85	117.9	0	0	0	0
helicopter	fly	004-001	845	85	80.1	0	0	0	0
lecture	deliver	002-002	845	85	65.3	0	0	0	0
nonsense	talk	003-001	845	85	42.1	0	0	0	0
factory	close	002-001	845	85	31.5	0	0	0	0
penalty	pay	004-001	845	85	21.5	0	0	0	0
excitement	feel	002-001	845	85	20.7	0	0	0	0
faith	put	002-001	852	84	10.3	107	3	0	0
danger	face	001-001	852	84	23.9	274	1	0	0
suspicion	confirm	004-003	852	84	67.3	0	0	0	0
van	drive	003-001	852	84	33.7	0	0	0	0
resistance	offer	003-001	852	84	25.5	0	0	0	0
column	write	003-001	852	84	18.8	0	0	0	0
contest	win	002-001	858	83	44.0	166	2	0	0
weight	gain	002-002	858	83	29.9	166	2	0	0
regret	express	003-001	858	83	91.7	274	1	0	0
tooth	brush	003-002	858	83	89.9	274	1	0	0
grave	dig	002-003	858	83	132.5	0	0	0	0
border	guard	002-002	858	83	65.0	0	0	0	0
pie	make	005-001	858	83	11.0	0	0	0	0
tip	give	002-001	858	83	9.1	0	0	0	0
file	keep	003-001	858	83	8.5	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
infection	prevent	004-002	867	82	46.4	274	1	0	0
alarm	set	003-001	867	82	27.2	274	1	0	0
envelope	address	003-001	867	82	88.9	0	0	0	0
grip	lose	003-001	867	82	37.5	0	0	0	0
guidance	offer	004-001	867	82	27.2	0	0	0	0
expectation	meet	004-001	867	82	20.0	0	0	0	0
fortune	spend	003-001	873	81	32.4	166	2	0	0
reputation	earn	003-002	873	81	61.4	0	0	0	0
partnership	form	004-001	873	81	30.1	0	0	0	0
negotiation	open	004-001	873	81	24.4	0	0	0	0
sword	draw	003-001	877	80	44.0	274	1	0	0
acceptance	gain	004-002	877	80	56.1	0	0	0	0
consensus	reach	004-001	877	80	42.3	0	0	0	0
prey	fall	005-001	877	80	42.1	0	0	0	0
consequence	suffer	003-001	877	80	26.2	0	0	0	0
exit	make	005-001	877	80	14.0	0	0	0	0
feedback	get	005-001	877	80	12.1	0	0	0	0
discount	give	004-001	877	80	11.2	0	0	0	0
seminar	attend	004-002	885	79	65.3	166	2	0	0
gratitude	express	006-001	885	79	91.5	274	1	0	0
bicycle	ride	003-001	885	79	116.1	0	0	6	3
disturbance	cause	005-001	885	79	48.7	0	0	0	0
audience	attract	001-002	885	79	41.9	0	0	0	0
dose	receive	004-001	885	79	34.8	0	0	0	0
trap	set	002-001	885	79	31.9	0	0	0	0
bonus	pay	005-001	885	79	31.7	0	0	0	0
sensation	feel	003-001	885	79	23.6	0	0	0	0
letter	open	001-001	885	79	6.5	0	0	0	0
blessing	give	006-001	895	78	21.6	166	2	0	0
concern	express	001-001	895	78	256.0	274	1	0	0
tension	ease	003-002	895	78	86.2	274	1	0	0
hope	dash	001-005	895	78	97.8	0	0	0	0
reputation	acquire	003-002	895	78	52.1	0	0	0	0
anger	express	002-001	895	78	42.4	0	0	0	0
childhood	spend	002-001	895	78	32.5	0	0	0	0
blame	take	002-001	895	78	19.4	0	0	0	0
surprise	express	001-001	903	77	33.3	274	1	0	0
bail	grant	006-002	903	77	113.7	0	0	0	0
sympathy	express	003-001	903	77	49.8	0	0	0	0
invitation	receive	003-001	903	77	34.7	0	0	0	0
appeal	reject	002-003	903	77	30.6	0	0	0	0
shout	give	001-001	903	77	24.8	0	0	0	0
liability	accept	004-001	903	77	24.7	0	0	0	0
loss	cut	001-001	903	77	11.5	0	0	0	0
opinion	hold	001-001	903	77	7.2	0	0	0	0
cue	take	006-001	912	76	19.0	74	4	0	0
mystery	solve	002-002	912	76	82.2	166	2	0	0
promise	break	001-001	912	76	31.2	166	2	0	0
tooth	clench	×	912	76	163.6	274	1	0	0
suggestion	reject	002-003	912	76	45.2	274	1	0	0
poetry	read	002-001	912	76	28.2	274	1	0	0
letter	answer	001-001	912	76	14.4	0	0	31	1
queue	join	005-001	912	76	58.3	0	0	0	0
advertisement	place	003-001	912	76	45.9	0	0	0	0
warning	ignore	002-002	912	76	45.0	0	0	0	0
constitution	adopt	003-002	912	76	43.4	0	0	0	0
fate	decide	003-001	912	76	34.3	0	0	0	0
reaction	cause	002-001	912	76	18.1	0	0	0	0
mine	work	001-001	912	76	15.2	0	0	0	0
appointment	keep	002-001	912	76	10.8	0	0	0	0
crowd	draw	001-001	927	75	21.4	166	2	0	0
rope	tie	003-002	927	75	89.9	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
sentiment	express	005-001	927	75	72.8	0	0	0	0
alarm	cause	003-001	927	75	36.0	0	0	0	0
wood	cut	001-001	927	75	17.4	0	0	0	0
concept	understand	002-001	927	75	14.2	0	0	0	0
shower	take	003-001	927	75	9.6	0	0	0	0
pilgrimage	make	007-001	934	74	21.3	0	0	0	0
publicity	get	004-001	935	73	4.5	274	1	0	0
reservation	make	003-001	936	72	8.4	274	1	13	2
verse	write	004-001	936	72	26.5	274	1	0	0
transformation	undergo	004-004	936	72	112.1	0	0	0	0
maturity	reach	005-001	936	72	42.7	0	0	0	0
reception	give	004-001	936	72	9.3	0	0	0	0
danger	pose	001-004	941	71	52.5	0	0	0	0
ambition	achieve	003-001	941	71	38.4	0	0	0	0
publicity	receive	004-001	941	71	29.6	0	0	0	0
application	reject	003-003	941	71	21.5	0	0	0	0
hearing	hold	004-001	945	70	15.8	274	1	0	0
urge	feel	002-001	945	70	34.6	0	0	0	0
gate	close	002-001	945	70	27.7	0	0	0	0
guarantee	provide	004-001	945	70	20.0	0	0	0	0
festival	hold	002-001	945	70	15.4	0	0	0	0
luck	try	002-001	950	69	15.5	274	1	0	0
accord	sign	002-001	950	69	74.9	0	0	0	0
grade	get	002-001	950	69	3.0	0	0	0	0
medication	take	007-001	953	68	21.8	166	2	0	0
champagne	drink	005-001	953	68	64.9	274	1	0	0
stroke	suffer	003-001	953	68	48.5	274	1	0	0
miracle	perform	003-002	953	68	64.2	0	0	0	0
prayer	answer	003-001	953	68	42.1	0	0	0	0
inquest	hold	006-001	953	68	34.3	0	0	0	0
trail	follow	003-001	953	68	27.4	0	0	0	0
pity	feel	004-001	953	68	21.3	0	0	0	0
switch	make	002-001	953	68	5.7	0	0	0	0
deadline	set	005-001	962	67	33.8	274	1	0	0
wound	inflict	002-005	962	67	160.7	0	0	0	0
bargain	strike	004-001	962	67	79.6	0	0	0	0
garden	plant	001-001	962	67	36.4	0	0	0	0
hint	take	003-001	962	67	7.8	0	0	0	0
constitution	amend	003-005	967	66	95.1	46	6	0	0
expense	cover	004-001	967	66	21.9	166	2	0	0
stop	make	001-001	967	66	3.9	274	1	0	0
phrase	coin	002-003	967	66	200.0	0	0	0	0
flag	wave	003-001	967	66	103.2	0	0	0	0
analogy	draw	005-001	967	66	46.2	0	0	0	0
illusion	create	003-001	967	66	43.6	0	0	0	0
lorry	drive	005-001	967	66	41.0	0	0	0	0
inspiration	draw	005-001	967	66	40.8	0	0	0	0
tension	reduce	003-001	967	66	24.4	0	0	0	0
repair	make	002-001	967	66	3.2	0	0	0	0
parcel	send	005-001	978	65	40.5	274	1	0	0
dose	take	004-001	978	65	5.7	274	1	0	0
momentum	gather	006-002	978	65	104.0	0	0	0	0
satisfaction	express	003-001	978	65	37.2	0	0	0	0
vote	count	001-001	978	65	35.2	0	0	0	0
motion	pass	003-001	978	65	19.6	0	0	0	0
stone	set	001-001	978	65	5.0	0	0	0	0
truck	drive	002-001	985	64	42.6	74	4	0	0
muscle	flex	×	985	64	200.7	274	1	0	0
obstacle	overcome	005-002	985	64	104.5	274	1	0	0
toilet	use	003-001	985	64	11.3	274	1	0	0
assertion	make	005-001	985	64	10.3	274	1	0	0
disappointment	express	003-001	985	64	49.3	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
difference	resolve	001-004	985	64	23.0	0	0	0	0
pulse	feel	005-001	985	64	21.4	0	0	0	0
reception	hold	004-001	985	64	17.8	0	0	0	0
determination	show	004-001	985	64	13.6	0	0	0	0
expectation	exceed	004-004	995	63	58.2	274	1	0	0
appreciation	show	005-001	995	63	22.7	274	1	0	0
comfort	provide	002-001	995	63	14.6	0	0	0	0
crop	yield	002-004	998	62	96.6	274	1	0	0
independence	declare	002-002	998	62	40.3	274	1	0	0
motion	table	×	998	62	174.2	0	0	0	0
innocence	protest	006-002	998	62	145.2	0	0	0	0
gaze	fix	002-002	998	62	70.9	0	0	0	0
suggestion	offer	002-001	998	62	14.4	0	0	0	0
acquaintance	make	006-001	998	62	12.1	0	0	0	0
credit	offer	002-001	998	62	10.2	0	0	0	0
hay	make	006-001	998	62	9.8	0	0	0	0
protest	stage	002-001	1007	61	85.3	274	1	0	0
splash	make	005-001	1007	61	18.9	274	1	0	0
directive	issue	004-001	1007	61	49.2	0	0	0	0
crisis	resolve	002-004	1007	61	40.2	0	0	0	0
gear	change	003-001	1007	61	26.7	0	0	0	0
shelter	take	003-001	1007	61	8.5	0	0	0	0
sensation	cause	003-001	1013	60	32.7	0	0	31	1
havoc	play	008-001	1013	60	58.1	0	0	0	0
confrontation	avoid	005-001	1013	60	54.5	0	0	0	0
territory	occupy	003-003	1013	60	46.4	0	0	0	0
memoir	write	007-001	1013	60	40.3	0	0	0	0
bell	sound	002-001	1013	60	31.6	0	0	0	0
pollution	control	002-001	1013	60	28.6	0	0	0	0
comparison	draw	003-001	1013	60	17.2	0	0	0	0
wage	cut	002-001	1013	60	15.9	0	0	0	0
cab	get	003-001	1022	60	6.3	0	0	0	0
gospel	preach	006-005	1023	59	169.5	274	1	0	0
lifetime	last	003-001	1023	59	65.6	274	1	0	0
spice	add	007-001	1023	59	49.3	0	0	0	0
cab	take	003-001	1023	59	7.9	0	0	0	0
wig	wear	008-001	1027	58	81.1	0	0	0	0
frontier	cross	005-001	1027	58	66.5	0	0	0	0
fame	achieve	005-001	1027	58	44.4	0	0	0	0
privilege	enjoy	004-001	1027	58	32.2	0	0	0	0
declaration	issue	003-001	1031	57	45.8	0	0	0	0
inquiry	launch	004-004	1031	57	35.7	0	0	0	0
burden	share	003-001	1031	57	32.9	0	0	0	0
boundary	draw	004-001	1031	57	17.7	0	0	0	0
championship	hold	002-001	1031	57	9.0	0	0	0	0
budget	balance	004-002	1036	56	41.4	107	3	0	0
vacuum	fill	006-001	1036	56	61.8	274	1	0	0
disease	spread	001-001	1036	56	22.8	274	1	0	0
cream	whip	002-004	1036	56	121.7	0	0	0	0
satellite	launch	003-004	1036	56	51.0	0	0	0	0
obstacle	remove	005-002	1036	56	48.6	0	0	0	0
trophy	present	005-001	1036	56	40.0	0	0	0	0
questionnaire	return	005-001	1036	56	30.8	0	0	0	0
affection	feel	004-001	1036	56	18.0	0	0	0	0
proof	provide	004-001	1036	56	12.7	0	0	0	0
coin	toss	003-005	1046	55	109.3	0	0	0	0
horn	blow	003-002	1046	55	67.2	0	0	0	0
hardship	suffer	006-001	1046	55	59.7	0	0	0	0
intention	state	004-001	1046	55	22.0	0	0	0	0
battery	recharge	×	1050	54	332.5	274	1	0	0
morale	boost	006-004	1050	54	143.7	274	1	0	0
cow	milk	×	1050	54	257.3	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
inflation	control	004-001	1050	54	24.3	0	0	0	0
blame	put	002-001	1050	54	23.2	0	0	0	0
courage	show	002-001	1050	54	14.2	0	0	0	0
sympathy	show	003-001	1050	54	12.9	0	0	0	0
illusion	give	003-001	1050	54	11.7	0	0	0	0
amendment	propose	004-003	1058	53	39.7	107	3	0	0
bow	take	002-001	1058	53	6.9	166	2	0	0
comfort	find	002-001	1058	53	6.4	166	2	0	0
envoy	send	008-001	1058	53	55.6	274	1	0	0
cargo	carry	005-001	1058	53	31.8	274	1	0	0
cigar	smoke	007-002	1058	53	139.9	0	0	0	0
documentary	film	005-001	1058	53	49.9	0	0	0	0
expedition	lead	003-001	1058	53	25.2	0	0	0	0
destruction	cause	002-001	1058	53	25.1	0	0	0	0
magic	work	002-001	1058	53	16.7	0	0	0	0
file	close	003-001	1058	53	15.0	0	0	0	0
warning	receive	002-001	1058	53	14.5	0	0	0	0
custody	take	005-001	1058	53	7.0	0	0	0	0
fate	seal	003-003	1071	52	101.4	274	1	0	0
review	receive	004-001	1071	52	8.1	274	1	0	0
storm	weather	×	1071	52	224.2	0	0	0	0
muscle	tense	×	1071	52	141.7	0	0	0	0
credibility	lose	005-001	1071	52	34.0	0	0	0	0
verdict	reach	004-001	1071	52	28.9	0	0	0	0
invitation	send	003-001	1071	52	22.9	0	0	0	0
talent	show	002-001	1071	52	10.2	0	0	0	0
void	fill	006-001	1079	51	77.2	107	3	0	0
friendship	form	002-001	1079	51	25.6	274	1	0	0
cattle	graze	×	1079	51	139.3	0	0	0	0
wing	spread	002-001	1079	51	31.2	0	0	0	0
mercy	show	005-001	1079	51	19.7	0	0	0	0
crown	win	002-001	1079	51	12.7	0	0	0	0
atrocity	commit	008-004	1085	50	115.7	274	1	0	0
dam	build	007-001	1085	50	41.0	274	1	0	0
kiss	blow	002-002	1085	50	58.4	0	0	0	0
horn	sound	003-001	1085	50	43.3	0	0	0	0
happiness	bring	003-001	1085	50	18.7	0	0	0	0
difference	settle	001-002	1085	50	11.8	0	0	0	0
divorce	get	003-001	1085	50	3.6	0	0	0	0
complaint	lodge	004-005	1092	49	75.5	0	0	0	0
mistake	correct	001-002	1092	49	55.0	0	0	0	0
willingness	express	005-001	1092	49	44.7	0	0	0	0
invitation	extend	003-002	1092	49	36.0	0	0	0	0
prosecution	face	004-001	1092	49	25.0	0	0	0	0
craft	learn	003-001	1092	49	23.1	0	0	0	0
muscle	pull	002-001	1092	49	22.6	0	0	0	0
retreat	beat	004-001	1092	49	19.1	0	0	0	0
temperature	control	002-001	1092	49	18.8	0	0	0	0
shame	feel	003-001	1092	49	13.5	0	0	0	0
deficit	run	004-001	1102	48	13.4	166	2	0	0
trend	buck	003-006	1102	48	181.8	274	1	0	0
demonstration	stage	003-001	1102	48	73.0	274	1	0	0
resentment	feel	005-001	1102	48	19.0	274	1	0	0
discomfort	cause	007-001	1102	48	43.2	0	0	0	0
invitation	issue	003-001	1102	48	39.3	0	0	0	0
popularity	enjoy	005-001	1102	48	37.4	0	0	0	0
request	grant	002-002	1102	48	26.8	0	0	0	0
talent	develop	002-001	1102	48	18.0	0	0	0	0
lid	put	005-001	1102	48	15.4	0	0	0	0
popularity	gain	005-002	1112	47	47.3	274	1	0	0
dance	perform	001-002	1112	47	28.4	274	1	0	0
cigar	light	007-001	1112	47	112.7	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
pony	ride	005-001	1112	47	70.0	0	0	0	0
scarf	wear	006-001	1112	47	51.4	0	0	0	0
innocence	prove	006-001	1112	47	44.0	0	0	0	0
diagnosis	confirm	004-003	1112	47	40.2	0	0	0	0
apology	accept	005-001	1112	47	32.6	0	0	0	0
momentum	lose	006-001	1112	47	31.1	0	0	0	0
rope	pull	003-001	1112	47	30.0	0	0	0	0
panic	cause	003-001	1112	47	26.7	0	0	0	0
sadness	feel	006-001	1112	47	22.6	0	0	0	0
willingness	show	005-001	1112	47	17.4	0	0	0	0
testimony	give	006-001	1112	47	13.9	0	0	0	0
interpretation	put	003-001	1112	47	3.2	0	0	0	0
missile	launch	004-004	1127	46	44.5	166	2	0	0
nut	crack	003-002	1127	46	106.9	274	1	0	0
tent	pitch	×	1127	46	148.8	0	0	0	0
patent	grant	005-002	1127	46	52.8	0	0	0	0
privilege	grant	004-002	1127	46	37.5	0	0	0	0
exam	sit	003-001	1127	46	22.5	0	0	0	0
tunnel	build	003-001	1127	46	18.1	0	0	0	0
affection	show	004-001	1127	46	14.3	0	0	0	0
trace	show	002-001	1127	46	12.5	0	0	0	0
premium	put	004-001	1127	46	10.8	0	0	0	0
clue	find	003-001	1127	46	7.8	0	0	0	0
bladder	empty	005-002	1138	45	151.0	0	0	0	0
warning	heed	×	1138	45	137.2	0	0	0	0
hurdle	overcome	006-002	1138	45	95.8	0	0	0	0
appetite	satisfy	005-002	1138	45	91.7	0	0	0	0
sea	sail	001-002	1138	45	24.8	0	0	0	0
grip	loosen	003-007	1143	44	146.8	0	0	0	0
brake	apply	006-002	1143	44	33.1	0	0	0	0
prayer	offer	003-001	1143	44	13.8	0	0	0	0
reply	send	001-001	1143	44	13.8	0	0	0	0
obligation	feel	004-001	1143	44	5.4	0	0	0	0
allegiance	owe	006-002	1148	43	81.3	0	0	0	0
invitation	decline	003-004	1148	43	54.9	0	0	0	0
pulse	take	005-001	1148	43	37.4	0	0	0	0
appreciation	express	005-001	1148	43	36.9	0	0	0	0
beard	grow	005-001	1148	43	33.5	0	0	0	0
vacuum	create	006-001	1148	43	32.5	0	0	0	0
casualty	suffer	004-001	1148	43	31.8	0	0	0	0
rib	break	005-001	1148	43	31.6	0	0	0	0
soul	save	002-001	1148	43	20.9	0	0	0	0
contempt	show	005-001	1148	43	15.2	0	0	0	0
clearance	give	006-001	1148	43	10.5	0	0	0	0
plant	water	×	1159	42	47.4	274	1	0	0
suicide	attempt	003-001	1159	42	37.2	274	1	0	0
vitamin	take	003-001	1159	42	5.5	274	1	0	0
tune	sing	003-001	1159	42	44.6	0	0	0	0
sin	commit	004-004	1159	42	41.5	0	0	0	0
telephone	tap	001-002	1159	42	37.5	0	0	0	0
ceiling	set	003-001	1159	42	11.8	0	0	0	0
pastry	make	007-001	1159	42	10.2	0	0	0	0
fist	shake	003-001	1167	41	39.4	166	2	0	0
hockey	play	007-001	1167	41	28.9	166	2	0	0
feat	perform	007-002	1167	41	65.9	274	1	0	0
fate	meet	003-001	1167	41	14.2	274	1	0	0
call	return	001-001	1167	41	6.3	274	1	0	0
excitement	cause	002-001	1167	41	17.9	0	0	0	0
dissatisfaction	express	007-001	1167	41	13.8	0	0	0	0
demand	reject	001-003	1167	41	12.8	0	0	0	0
bargain	get	004-001	1167	41	4.5	0	0	0	0
ferry	take	005-001	1167	41	4.5	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
satisfaction	feel	003-001	1177	40	7.0	107	3	0	0
curiosity	satisfy	005-002	1177	40	77.6	0	0	0	0
scope	widen	004-005	1177	40	63.3	0	0	0	0
missile	fire	004-001	1177	40	54.9	0	0	0	0
arrest	resist	002-003	1177	40	51.2	0	0	0	0
battery	charge	003-002	1177	40	36.6	0	0	0	0
engagement	announce	004-002	1177	40	28.8	0	0	0	0
flag	raise	003-001	1177	40	21.0	0	0	0	0
search	conduct	001-002	1185	39	22.1	166	2	0	0
suitcase	pack	006-002	1185	39	89.4	274	1	0	0
yacht	sail	005-002	1185	39	70.5	274	1	0	0
nomination	win	006-001	1185	39	28.6	274	1	0	0
backing	win	004-001	1185	39	24.0	274	1	0	0
twist	take	003-001	1185	39	7.0	274	1	0	0
lawn	mow	×	1185	39	284.7	0	0	0	0
luxury	afford	003-002	1185	39	56.8	0	0	0	0
blow	deliver	002-002	1185	39	34.6	0	0	0	0
error	commit	003-004	1185	39	20.0	0	0	0	0
jealousy	feel	006-001	1185	39	18.7	0	0	0	0
temper	keep	005-001	1185	39	15.1	0	0	0	0
auction	hold	005-001	1185	39	14.1	0	0	0	0
consequence	face	003-001	1185	39	9.1	0	0	0	0
allegiance	swear	006-004	1199	38	102.4	0	0	0	0
ritual	perform	003-002	1199	38	36.7	0	0	0	0
misery	cause	005-001	1199	38	24.6	0	0	0	0
engagement	break	004-001	1199	38	21.8	0	0	0	0
instinct	follow	003-001	1199	38	12.5	0	0	0	0
assignment	give	003-001	1199	38	4.8	0	0	0	0
inspiration	provide	005-001	1205	37	13.0	274	1	0	0
throat	slit	×	1205	37	196.7	0	0	0	0
sentiment	echo	005-003	1205	37	91.4	0	0	0	0
meat	cook	002-002	1205	37	34.4	0	0	0	0
roll	call	002-001	1205	37	27.9	0	0	0	0
equality	achieve	003-001	1205	37	24.1	0	0	0	0
workforce	cut	005-001	1205	37	22.7	0	0	0	0
precedent	establish	006-002	1212	36	26.6	274	1	0	0
acquaintance	renew	006-005	1212	36	120.4	0	0	0	0
rocket	fire	006-001	1212	36	73.7	0	0	0	0
pipe	light	002-001	1212	36	35.7	0	0	0	0
round	fire	001-001	1212	36	30.9	0	0	0	0
backdrop	provide	008-001	1212	36	24.1	0	0	0	0
hospitality	offer	006-001	1212	36	23.4	0	0	0	0
stamp	put	003-001	1212	36	8.9	0	0	0	0
joy	feel	002-001	1212	36	5.4	0	0	0	0
accusation	deny	005-002	1221	35	41.4	274	1	0	0
myth	dispel	×	1221	35	129.1	0	0	0	0
whip	crack	004-002	1221	35	108.6	0	0	0	0
pill	swallow	005-003	1221	35	78.5	0	0	0	0
belt	tighten	003-004	1221	35	63.3	0	0	0	0
fur	wear	003-001	1221	35	29.3	0	0	0	0
bonus	receive	005-001	1221	35	16.8	0	0	0	0
gratitude	show	006-001	1221	35	16.6	0	0	0	0
reluctance	show	005-001	1221	35	13.7	0	0	0	0
trend	set	003-001	1221	35	5.2	0	0	0	0
fortune	tell	003-001	1221	35	4.0	0	0	0	0
torch	carry	005-001	1232	34	19.3	0	0	31	1
posture	adopt	007-002	1232	34	50.0	0	0	0	0
wound	receive	002-001	1232	34	14.9	0	0	0	0
fortune	lose	003-001	1232	34	10.7	0	0	0	0
tan	get	005-001	1232	34	9.0	0	0	0	0
egg	fry	002-003	1237	33	64.2	274	1	0	0
jet	fly	003-001	1237	33	28.1	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
breakdown	suffer	004-001	1237	33	25.1	274	1	0	0
toe	curl	003-003	1237	33	86.3	0	0	0	0
credibility	undermine	005-004	1237	33	81.3	0	0	0	0
controversy	arouse	004-005	1237	33	68.1	0	0	0	0
sanctuary	seek	006-002	1237	33	30.3	0	0	0	0
shelter	seek	003-002	1237	33	21.5	0	0	0	0
salute	give	007-001	1237	33	19.5	0	0	0	0
amnesty	grant	006-002	1246	32	39.2	274	1	0	0
imbalance	correct	007-002	1246	32	107.8	0	0	0	0
champagne	sip	005-006	1246	32	87.9	0	0	0	0
ankle	twist	005-003	1246	32	69.7	0	0	0	0
caution	exercise	005-001	1246	32	43.7	0	0	0	0
egg	boil	002-003	1246	32	41.2	0	0	0	0
stamp	collect	003-002	1246	32	30.2	0	0	0	0
infection	spread	004-001	1246	32	24.1	0	0	0	0
hatred	feel	005-001	1246	32	12.1	0	0	0	0
concert	hold	002-001	1246	32	7.1	0	0	0	0
toilet	flush	003-005	1256	31	75.8	274	1	0	0
bargain	drive	004-001	1256	31	24.6	274	1	0	0
complication	cause	005-001	1256	31	20.6	274	1	0	0
imbalance	redress	×	1256	31	252.6	0	0	0	0
pistol	fire	006-001	1256	31	62.1	0	0	0	0
passion	arouse	003-005	1256	31	59.1	0	0	0	0
scholarship	award	005-002	1256	31	58.3	0	0	0	0
ship	board	001-001	1256	31	44.9	0	0	0	0
imagination	lack	002-001	1256	31	21.2	0	0	0	0
prose	write	006-001	1256	31	17.0	0	0	0	0
compassion	show	007-001	1256	31	16.2	0	0	0	0
endorsement	give	007-001	1256	31	9.7	0	0	0	0
consultation	hold	004-001	1256	31	5.7	0	0	0	0
inspiration	find	005-001	1269	30	5.9	274	1	0	0
flame	fan	003-002	1269	30	94.1	0	0	0	0
rifle	fire	005-001	1269	30	57.3	0	0	0	0
rocket	launch	006-004	1269	30	43.3	0	0	0	0
wisdom	question	003-001	1269	30	41.5	0	0	0	0
memoir	publish	007-001	1269	30	36.7	0	0	0	0
breakthrough	achieve	006-001	1269	30	28.5	0	0	0	0
freight	carry	006-001	1269	30	17.7	0	0	0	0
void	leave	006-001	1269	30	17.3	0	0	0	0
emotion	control	002-001	1269	30	15.2	0	0	0	0
conviction	overturn	004-007	1279	29	75.4	107	3	0	0
praise	win	003-001	1279	29	17.1	274	1	0	0
gospel	spread	006-001	1279	29	35.8	0	0	0	0
distress	suffer	005-001	1279	29	22.9	0	0	0	0
bet	win	003-001	1279	29	19.9	0	0	0	0
contest	enter	002-001	1279	29	19.5	0	0	0	0
accord	reach	002-001	1279	29	19.0	0	0	0	0
view	exchange	001-001	1279	29	11.0	0	0	0	0
medicine	practise	002-001	1279	29	9.6	0	0	0	0
judgment	pass	003-001	1279	29	9.3	0	0	0	0
visa	get	007-001	1279	29	6.0	0	0	0	0
intelligence	gather	002-002	1290	28	22.5	74	4	0	0
funeral	attend	003-002	1290	28	41.1	166	2	0	0
appetite	lose	005-001	1290	28	17.1	166	2	0	0
suspect	arrest	003-002	1290	28	44.0	274	1	0	0
veto	override	006-007	1290	28	243.8	0	0	0	0
tooth	gnash	×	1290	28	208.4	0	0	0	0
brow	mop	×	1290	28	162.3	0	0	0	0
forgiveness	beg	008-003	1290	28	111.4	0	0	0	0
pocket	empty	002-002	1290	28	43.2	0	0	0	0
dismay	express	006-001	1290	28	38.3	0	0	0	0
injunction	issue	006-001	1290	28	33.6	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
arrow	shoot	003-002	1290	28	27.3	0	0	0	0
workforce	reduce	005-001	1290	28	17.0	0	0	0	0
quota	set	005-001	1290	28	11.1	0	0	0	0
recipe	follow	003-001	1290	28	8.2	0	0	0	0
antibiotic	take	006-001	1305	27	5.1	74	4	0	0
rift	heal	008-005	1305	27	145.8	274	1	0	0
throne	ascend	×	1305	27	147.0	0	0	0	0
petition	file	004-003	1305	27	63.2	0	0	0	0
allegiance	switch	006-002	1305	27	51.0	0	0	0	0
veil	lift	007-001	1305	27	48.2	0	0	0	0
screw	turn	004-001	1305	27	35.1	0	0	0	0
veil	draw	007-001	1305	27	26.1	0	0	0	0
temper	control	005-001	1305	27	23.8	0	0	0	0
flexibility	show	004-001	1305	27	5.7	0	0	0	0
comparison	stand	003-001	1305	27	4.1	0	0	0	0
apartment	rent	×	1316	26	56.8	274	1	0	0
praise	heap	×	1316	26	169.6	0	0	0	0
privacy	invade	005-005	1316	26	90.0	0	0	0	0
belt	fasten	003-007	1316	26	69.0	0	0	0	0
scarf	tie	006-002	1316	26	53.8	0	0	0	0
queue	jump	005-001	1316	26	36.9	0	0	0	0
ceasefire	sign	006-001	1316	26	33.5	0	0	0	0
truce	call	008-001	1316	26	17.5	0	0	0	0
exam	fail	003-001	1316	26	16.9	0	0	0	0
sacrifice	offer	003-001	1316	26	14.8	0	0	0	0
thrill	get	003-001	1316	26	5.2	0	0	0	0
fabric	weave	004-003	1327	25	49.8	0	0	0	0
myth	explode	003-003	1327	25	47.8	0	0	0	0
flour	mix	005-002	1327	25	41.8	0	0	0	0
trauma	suffer	007-001	1327	25	30.9	0	0	0	0
motive	question	004-001	1327	25	30.3	0	0	0	0
talent	display	002-002	1327	25	20.7	0	0	0	0
sentence	suspend	001-003	1327	25	18.3	0	0	0	0
cab	drive	003-001	1327	25	16.8	0	0	0	0
apology	offer	005-001	1327	25	13.3	0	0	0	0
habit	form	002-001	1327	25	8.1	0	0	0	0
celebration	hold	003-001	1327	25	6.1	0	0	0	0
lawsuit	file	007-003	1338	24	158.9	274	1	0	0
sensation	create	003-001	1338	24	11.6	274	1	0	0
flag	hoist	×	1338	24	102.3	0	0	0	0
wing	clip	002-004	1338	24	45.1	0	0	0	0
thrill	feel	003-001	1338	24	13.0	0	0	0	0
profile	maintain	004-002	1338	24	12.7	0	0	0	0
solidarity	show	006-001	1338	24	8.1	0	0	0	0
slogan	chant	006-006	1345	23	129.6	0	0	0	0
illusion	shatter	003-005	1345	23	76.5	0	0	0	0
drum	beat	003-001	1345	23	55.4	0	0	0	0
restraint	exercise	005-001	1345	23	29.3	0	0	0	0
optimism	express	006-001	1345	23	24.5	0	0	0	0
prestige	enjoy	006-001	1345	23	20.5	0	0	0	0
spotlight	turn	007-001	1345	23	16.2	0	0	0	0
loyalty	show	004-001	1345	23	4.5	0	0	0	0
envelope	seal	003-003	1353	22	49.2	274	1	0	0
settlement	negotiate	003-004	1353	22	13.0	274	1	0	0
chaos	create	004-001	1353	22	11.5	274	1	0	0
needle	thread	×	1353	22	76.8	0	0	0	0
medicine	prescribe	002-005	1353	22	36.9	0	0	0	0
fame	win	005-001	1353	22	13.0	0	0	0	0
medication	give	007-001	1353	22	7.0	0	0	0	0
tariff	impose	005-004	1360	21	25.7	274	1	0	0
honeymoon	spend	007-001	1360	21	20.3	274	1	0	0
ankle	sprain	×	1360	21	300.7	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
brow	wrinkle	005-008	1360	21	152.0	0	0	0	0
terrorism	combat	007-006	1360	21	88.9	0	0	0	0
cab	hail	003-006	1360	21	66.6	0	0	0	0
nail	hammer	×	1360	21	60.5	0	0	0	0
banner	wave	006-001	1360	21	49.8	0	0	0	0
tent	erect	003-005	1360	21	49.0	0	0	0	0
debris	clear	006-001	1360	21	35.0	0	0	0	0
denial	issue	006-001	1360	21	27.6	0	0	0	0
shell	fire	003-001	1360	21	22.7	0	0	0	0
dignity	maintain	003-002	1360	21	17.5	0	0	0	0
nomination	accept	006-001	1360	21	16.4	0	0	0	0
impatience	show	008-001	1360	21	13.3	0	0	0	0
colony	establish	003-002	1360	21	10.5	0	0	0	0
antibiotic	prescribe	006-005	1376	20	72.4	274	1	0	0
knife	sharpen	×	1376	20	52.2	0	0	0	0
potato	bake	002-006	1376	20	46.3	0	0	0	0
lemon	squeeze	005-003	1376	20	43.1	0	0	0	0
setback	receive	007-001	1376	20	17.2	0	0	0	0
reunion	hold	008-001	1376	20	11.7	0	0	0	0
tie	establish	002-002	1376	20	7.4	0	0	0	0
bottle	break	002-001	1376	20	3.9	0	0	0	0
disease	transmit	001-005	1384	19	16.3	274	1	0	0
awe	inspire	007-005	1384	19	63.7	0	0	0	0
blockade	lift	008-001	1384	19	41.5	0	0	0	0
hurdle	clear	006-001	1384	19	30.4	0	0	0	0
complaint	file	004-003	1384	19	25.4	0	0	0	0
praise	earn	003-002	1384	19	25.1	0	0	0	0
sorrow	express	007-001	1384	19	22.9	0	0	0	0
punishment	escape	004-001	1384	19	17.5	0	0	0	0
vaccine	give	007-001	1384	19	5.6	0	0	0	0
soul	search	002-001	1393	18	15.2	166	2	0	0
fire	cease	001-004	1393	18	7.9	274	1	0	0
ferry	board	005-001	1393	18	56.9	0	0	0	0
discomfort	experience	007-001	1393	18	28.0	0	0	0	0
handicap	overcome	003-002	1393	18	27.9	0	0	0	0
judgment	reserve	003-002	1393	18	22.7	0	0	0	0
plea	reject	005-003	1393	18	19.7	0	0	0	0
judgment	exercise	003-001	1393	18	13.4	0	0	0	0
plea	enter	005-001	1393	18	12.5	0	0	0	0
salute	take	007-001	1393	18	7.9	0	0	0	0
egg	fertilize	×	1403	17	83.1	74	4	0	0
truce	declare	008-002	1403	17	35.6	274	1	0	0
agony	prolong	×	1403	17	81.6	0	0	0	0
moisture	absorb	007-003	1403	17	43.6	0	0	0	0
paint	spray	001-003	1403	17	43.0	0	0	0	0
apple	peel	×	1403	17	37.5	0	0	0	0
sadness	express	006-001	1403	17	18.8	0	0	0	0
endorsement	receive	007-001	1403	17	14.1	0	0	0	0
sorrow	feel	007-001	1403	17	7.7	0	0	0	0
tolerance	show	006-001	1403	17	6.9	0	0	0	0
suspicion	allay	×	1413	16	81.2	0	0	0	0
orange	peel	×	1413	16	51.5	0	0	0	0
scarf	wrap	006-003	1413	16	43.9	0	0	0	0
notion	dispel	×	1413	16	39.2	0	0	0	0
statue	erect	003-005	1413	16	39.2	0	0	0	0
slave	free	003-001	1413	16	28.8	0	0	0	0
visa	grant	007-002	1413	16	27.6	0	0	0	0
citizenship	grant	006-002	1413	16	21.9	0	0	0	0
anguish	cause	007-001	1413	16	16.2	0	0	0	0
eyebrow	pluck	003-007	1422	15	59.5	0	0	0	0
boredom	relieve	×	1422	15	58.5	0	0	0	0
slavery	abolish	008-004	1422	15	56.4	0	0	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
screw	tighten	004-004	1422	15	48.1	0	0	0	0
rebellion	crush	005-005	1422	15	46.2	0	0	0	0
motorcycle	ride	008-001	1422	15	39.0	0	0	0	0
passport	issue	006-001	1422	15	17.5	0	0	0	0
rescue	attempt	002-001	1422	15	13.2	0	0	0	0
tie	cut	002-001	1422	15	4.9	0	0	0	0
revenge	exact	×	1431	14	103.2	274	1	0	0
injection	administer	005-004	1431	14	30.2	274	1	0	0
rift	cause	008-001	1431	14	14.1	274	1	0	0
banner	unfurl	×	1431	14	168.4	0	0	0	0
comeback	stage	007-001	1431	14	52.2	0	0	0	0
signature	forge	003-006	1431	14	44.1	0	0	0	0
prominence	gain	007-002	1431	14	20.6	0	0	0	0
horn	lock	003-002	1431	14	19.8	0	0	0	0
lawsuit	bring	007-001	1431	14	16.3	0	0	0	0
perfume	wear	007-001	1431	14	15.4	0	0	0	0
apology	demand	005-001	1431	14	15.0	0	0	0	0
stamp	issue	003-001	1431	14	12.6	0	0	0	0
weed	kill	006-001	1431	14	12.2	0	0	0	0
glory	bring	003-001	1431	14	3.2	0	0	0	0
coin	flip	003-007	1445	13	43.2	0	0	0	0
reinforcement	send	007-001	1445	13	10.9	0	0	0	0
diamond	set	003-001	1445	13	8.1	0	0	0	0
salary	cut	003-001	1445	13	4.2	0	0	0	0
feat	accomplish	007-005	1449	12	58.1	0	0	0	0
feather	pluck	003-007	1449	12	47.1	0	0	0	0
pill	prescribe	005-005	1449	12	34.6	0	0	0	0
destiny	shape	006-001	1449	12	32.0	0	0	0	0
bulletin	issue	006-001	1449	12	14.4	0	0	0	0
passage	book	002-001	1449	12	12.2	0	0	0	0
patience	test	005-001	1455	11	12.8	274	1	0	0
satellite	orbit	×	1455	11	68.4	0	0	0	0
boundary	redraw	×	1455	11	62.1	0	0	0	0
blockade	impose	008-004	1455	11	24.8	0	0	0	0
credibility	damage	005-001	1455	11	18.9	0	0	0	0
crusade	launch	007-004	1455	11	18.2	0	0	0	0
lottery	win	008-001	1455	11	13.1	0	0	0	0
perfection	achieve	006-001	1455	11	10.1	0	0	0	0
belt	buckle	×	1463	10	43.6	0	0	0	0
loyalty	pledge	004-005	1463	10	24.2	0	0	0	0
ear	pierce	002-007	1463	10	21.0	0	0	0	0
censorship	impose	007-004	1463	10	16.4	0	0	0	0
disgust	express	005-001	1463	10	12.2	0	0	0	0
gift	exchange	002-001	1463	10	11.0	0	0	0	0
cartoon	draw	006-001	1463	10	7.6	0	0	0	0
disgrace	bring	007-001	1463	10	6.4	0	0	0	0
terrorism	fight	007-001	1471	9	11.0	55	5	0	0
applause	win	007-001	1471	9	7.8	274	1	0	0
revolt	crush	005-005	1471	9	31.6	0	0	0	0
wisdom	doubt	003-001	1471	9	14.0	0	0	0	0
irritation	express	007-001	1471	9	10.2	0	0	0	0
allegiance	pledge	006-005	1476	8	31.1	166	2	0	0
pistol	load	006-003	1476	8	19.8	0	0	0	0
applause	draw	007-001	1476	8	7.2	0	0	0	0
clearance	receive	006-001	1476	8	4.4	0	0	0	0
cart	draw	005-001	1476	8	4.2	0	0	0	0
horn	honk	×	1481	7	95.0	274	1	0	0
plot	uncover	004-006	1481	7	16.0	274	1	0	0
condemnation	issue	008-001	1481	7	12.3	0	0	0	0
comeback	attempt	007-001	1481	7	11.0	0	0	0	0
sanctuary	offer	006-001	1481	7	3.7	0	0	0	0
potato	fry	002-003	1486	6	18.2	274	1	0	0

Nodes	Collocates	Level (N+V)	R. in BNC	F. in BNC	Z-score	R. in TIME	F. in TIME	R. in Englih	F. in English
steak	grill	007-007	1486	6	60.4	0	0	0	0
potato	mash	×	1486	6	35.4	0	0	0	0
beef	roast	003-006	1486	6	34.8	0	0	0	0
banana	peel	×	1486	6	25.0	0	0	0	0
nail	polish	005-004	1486	6	18.3	0	0	0	0
lawsuit	settle	007-002	1486	6	17.6	0	0	0	0
confrontation	provoke	005-004	1486	6	13.0	0	0	0	0
grave	desecrate	×	1494	5	56.7	0	0	0	0
potato	roast	002-006	1494	5	22.5	0	0	0	0
apple	core	002-004	1496	4	52.0	0	0	0	0
meat	grill	002-007	1496	4	16.4	0	0	0	0
nail	manicure	×	1498	3	72.5	0	0	0	0
outrage	spark	005-005	1498	3	14.0	0	0	0	0
bankruptcy	declare	005-002	1498	3	3.3	0	0	0	0
outrage	express	005-001	1501	1	131.5	274	1	0	0
obligation	fulfill	004-003	1501	1	6.7	0	0	0	0

Level (N + V) = Level (Noun + Verb)

R = Rank F = Frequency

TIME = the TIME corpus

English = the English I textbook corpus

Appendix E. Six features and the sub categories of collocations

id	Semantic opacity	L1 equivalence	collocational restriction	collocational structure	delexicalized verbs	core meanings	
						verbs	nouns
01-p	so1	tr2	re2	st2	de1	cv2	cn2
02-p	so2	tr1	re2	st2	de1	cv1	cn2
03-p	so2	tr2	re1	st1	de1	cv1	cn1
04-p	so2	tr1	re1	st2	de1	cv1	cn1
05-p	so1	tr2	re2	st2	de1	cv2	cn1
06-p	so3	tr2	re1	st2	de1	cv2	cn1
07-p	so2	tr1	re2	st2	de1	cv1	cn1
08-p	so2	tr1	re2	st2	de2	cv1	cn1
09-p	so1	tr2	re2	st1	de1	cv2	cn2
10-p	so2	tr1	re2	st2	de2	cv1	cn1
11-p	so2	tr1	re2	st2	de2	cv1	cn1
12-p	so2	tr2	re1	st1	de2	cv1	cn1
13-p	so2	tr2	re1	st1	de1	cv2	cn2
14-p	so2	tr1	re1	st2	de2	cv1	cn1
15-p	so3	tr2	re2	st2	de1	cv2	cn1
16-p	so3	tr2	re2	st1	de1	cv2	cn1
17-p	so1	tr2	re1	st2	de2	cv2	cn2
18-p	so1	tr2	re2	st1	de1	cv2	cn2
19-p	so3	tr2	re2	st1	de1	cv2	cn1
20-p	so2	tr1	re1	st2	de2	cv1	cn1
21-p	so1	tr2	re2	st1	de1	cv2	cn2
22-p	so3	tr2	re1	st2	de1	cv2	cn1
23-p	so3	tr2	re2	st1	de1	cv2	cn1
24-p	so2	tr1	re1	st2	de2	cv1	cn1
25-p	so2	tr1	re1	st2	de2	cv1	cn1
26-p	so2	tr1	re1	st2	de1	cv1	cn1
27-p	so3	tr2	re1	st2	de1	cv2	cn1
28-p	so2	tr1	re1	st2	de2	cv1	cn1
29-p	so3	tr2	re1	st2	de1	cv2	cn1
30-p	so2	tr2	re2	st1	de1	cv1	cn1
31-p	so2	tr1	re1	st2	de2	cv1	cn1
32-p	so2	tr1	re2	st1	de2	cv1	cn1
33-p	so2	tr1	re2	st2	de2	cv1	cn1
34-p	so3	tr2	re2	st2	de1	cv2	cn1
35-p	so3	tr2	re1	st2	de1	cv2	cn1
36-p	so3	tr2	re1	st1	de1	cv2	cn1
37-p	so2	tr1	re1	st2	de1	cv1	cn1
38-p	so2	tr1	re1	st2	de2	cv1	cn1
39-p	so2	tr1	re1	st2	de1	cv1	cn1
40-p	so2	tr1	re2	st2	de2	cv1	cn1
41-p	so3	tr2	re1	st1	de2	cv2	cn1
42-p	so2	tr1	re2	st2	de2	cv1	cn1
43-p	so3	tr2	re1	st1	de1	cv2	cn1
44-p	so3	tr1	re2	st2	de2	cv2	cn1
45-p	so3	tr2	re1	st2	de2	cv2	cn1
46-p	so3	tr2	re2	st2	de1	cv2	cn1
47-p	so2	tr1	re1	st2	de2	cv1	cn1
48-p	so2	tr1	re1	st2	de1	cv1	cn1
49-p	so2	tr1	re2	st1	de2	cv1	cn1
50-p	so3	tr2	re2	st1	de1	cv2	cn1
51-p	so2	tr1	re2	st1	de2	cv1	cn1
52-p	so2	tr1	re2	st2	de2	cv1	cn1
53-p	so2	tr2	re1	st2	de1	cv1	cn1
54-p	so2	tr1	re1	st2	de2	cv1	cn1
55-p	so3	tr2	re1	st2	de1	cv2	cn1
56-p	so2	tr1	re2	st2	de2	cv1	cn1
57-p	so3	tr2	re2	st1	de1	cv2	cn1
58-p	so2	tr1	re1	st2	de1	cv1	cn1
59-p	so2	tr1	re1	st2	de2	cv1	cn1
60-p	so2	tr2	re1	st2	de1	cv1	cn1
61-p	so3	tr1	re1	st2	de1	cv2	cn1
62-p	so1	tr2	re2	st2	de1	cv2	cn2
63-p	so3	tr1	re2	st2	de1	cv2	cn1
64-p	so1	tr2	re2	st2	de1	cv2	cn2
65-p	so3	tr2	re1	st2	de2	cv2	cn1
66-p	so1	tr2	re2	st2	de1	cv2	cn2
67-p	so3	tr2	re2	st1	de1	cv2	cn1
68-p	so3	tr2	re2	st1	de1	cv2	cn1

Appendix F. Vocabulary test

語彙テスト Q. 日本語の意味を表す英語を（1）～（6）の中から選び、その番号を解答欄に書き入れなさい。

I. **vst 11**

	1. 小麦粉を焼いた菓子		2. 集まり、会		
(1) birthday	(2) cookie	(3) fork	(4) party	(5) star	(6) sweater
	3. 玉ねぎ		4. ぶどう		
(1) grape	(2) lettuce	(3) onion	(4) pear	(5) rose	(6) tree
	5. 丸い入れ物		6. クッションのある長いす		
(1) bath	(2) lamp	(3) phone	(4) pot	(5) sofa	(6) stove
	7. 40		8. 100		
(1) forty	(2) hundred	(3) month	(4) six	(5) twelve	(6) year
	9. 町		10. 橋		
(1) bridge	(2) garage	(3) place	(4) scene	(5) square	(6) town
	11. 食事		12. 1つ、1 個、一片		
(1) air	(2) meal	(3) piece	(4) sign	(5) sound	(6) white
	13. 男の人		14. 象		
(1) change	(2) elephant	(3) man	(4) rabbit	(5) wolf	(6) woman
	15. 顔		16. てぬぐい		
(1) face	(2) finger	(3) hair	(4) leg	(5) shoe	(6) towel
	17. 不可解なこと、不思議なこと		18. 試験		
(1) act	(2) butterfly	(3) exam	(4) mystery	(5) tennis	(6) trouble
	19. 点、地点		20. 太陽		
(1) dam	(2) magazine	(3) pajamas	(4) point	(5) sun	(6) war
	21. 持っている		22. しなければならない		
(1) do	(2) get	(3) give	(4) have	(5) must	(6) raise
	23. 聞く		24. 続ける		
(1) add	(2) continue	(3) die	(4) listen	(5) mean	(6) understand
	25. すてきな、すばらしい		26. 大きい		
(1) cool	(2) hot	(3) large	(4) least	(5) nice	(6) quiet
	27. 偉大な、りっぱな		28. 早く		
(1) complete	(2) early	(3) great	(4) most	(5) never	(6) usually
	29. 彼女のもの		30. 私の		
(1) below	(2) hers	(3) my	(4) past	(5) which	(6) whom

	1. 旗		2. 丸く大きい緑色野菜		
(1) cabbage	(2) campus	(3) flag	(4) railway	(5) tin	(6) tournament
	3. 賞与		4. 盤上で白黒の駒を動かして、勝敗を競うゲーム		
(1) attention	(2) bonus	(3) chess	(4) hook	(5) pride	(6) union
	5. 限界、制限		6. 指導員、指導・助言を与える人		
(1) bottom	(2) coach	(3) flight	(4) limit	(5) proof	(6) quantity
	7. 通路、通行		8. 意見、眺め		
(1) climate	(2) factory	(3) law	(4) link	(5) passage	(6) view
	9. 勝利		10. 力、強さ		
(1) district	(2) fault	(3) quarter	(4) storm	(5) strength	(6) victory
	11. 洪水		12. 設備、備品		
(1) account	(2) courage	(3) equipment	(4) factor	(5) flood	(6) lack
	13. しつけ、鍛錬		14. 海岸		
(1) benefit	(2) coast	(3) discipline	(4) division	(5) soap	(6) truth
	15. 修理する、修繕する		16. 接吻（せっぷん）する、口づけする		
(1) advise	(2) establish	(3) kiss	(4) repair	(5) request	(6) settle
	17. 発見する、見つけ出す		18. 救う、救出する		
(1) attract	(2) discover	(3) observe	(4) pour	(5) recognize	(6) save
	19. 直す、繕う（つくろう）		20. 含む		
(1) contain	(2) defend	(3) delay	(4) mend	(5) occur	(6) trace
	21. 憎む		22. つかみ取る、奪う		
(1) appoint	(2) forgive	(3) hate	(4) pray	(5) seize	(6) spread
	23. 余分な		24. 自動的な、自動の		
(1) automatic	(2) extra	(3) honest	(4) legal	(5) sharp	(6) smooth
	25. 費用のかかる、高価な		26. 簡単な、単純な		
(1) awake	(2) exact	(3) expensive	(4) loud	(5) patient	(6) simple
	27. 好奇心の強い		28. 生の、加工していない		
(1) curious	(2) equal	(3) independent	(4) raw	(5) social	(6) steady
	29. 分かれた、分離した		30. 緊急の、差し迫った		
(1) bright	(2) frequent	(3) initial	(4) safe	(5) separate	(6) urgent

	1. 巻き毛		2. 肉、肉体		
(1) beach	(2) curl	(3) economy	(4) flesh	(5) glory	(6) worker
	3. 警察		4. 重さの単位		
(1) baggage	(2) circuit	(3) fool	(4) poet	(5) police	(6) ton
	5. 旅行者		6. 運動		
(1) access	(2) bounce	(3) campaign	(4) sunshine	(5) tourist	(6) wound
	7. 豆		8. 天火（調理器具)		
(1) bean	(2) fisherman	(3) ceiling	(4) margin	(5) oven	(6) ray
	9. 船		10. かすみ、もや		
(1) barn	(2) existence	(3) heap	(4) manufacturer	(5) mist	(6) vessel
	11. 儀式		12. 緊急事態		
(1) apparatus	(2) boundary	(3) ceremony	(4) emergency	(5) horizon	(6) sympathy
	13. 民主主義		14. 是認、賛成		
(1) approval	(2) contract	(3) democracy	(4) institution	(5) recall	(6) wheat
	15. 心理学		16. 説明		
(1) billion	(2) bundle	(3) explanation	(4) flavor	(5) lightning	(6) psychology
	17. 食事をする		18. 切り倒す		
(1) admit	(2) deny	(3) dine	(4) fell	(5) inquire	(6) rescue
	19. 改定する		20. 腐る、朽ちる		
(1) decay	(2) distribute	(3) fasten	(4) fold	(5) isolate	(6) revise
	21. 投資する		22. しきりに勧める		
(1) admire	(2) cease	(3) celebrate	(4) construct	(5) invest	(6) urge
	23. 気がついて		24. まっすぐに立っている		
(1) absent	(2) aware	(3) central	(4) drunk	(5) historical	(6) upright
	25. 等しい、全く同様の		26. 毎年の、年間の		
(1) annual	(2) constant	(3) deaf	(4) identical	(5) modest	(6) recent
	27. 可能性のある		28. 機械の、機械的な		
(1) confident	(2) mechanical	(3) odd	(4) potential	(5) splendid	(6) unusual
	29. 実際に		30. とにかく		
(1) actually	(2) anyhow	(3) completely	(4) indeed	(5) somewhere	(6) whenever

	1. 顕微鏡		2. 望遠鏡		
(1) cube	(2) kilometer	(3) license	(4) microscope	(5) studio	(6) telescope
	3. 化学者		4. 消費者		
(1) chemist	(2) consumer	(3) emperor	(4) membership	(5) sergeant	(6) sovereign
	5. 交響曲		6. 美術館		
(1) charity	(2) distribution	(3) faculty	(4) gallery	(5) session	(6) symphony
	7. 認めること、是認		8. 祝宴、宴会		
(1) admission	(2) bull	(3) feast	(4) geometry	(5) hedge	(6) succession
	9. つけ値、入札		10. 小さな包み		
(1) bid	(2) certificate	(3) evolution	(4) lane	(5) packet	(6) poll
	11. 赤道		12. 手がかり		
(1) bullet	(2) clue	(3) equator	(4) facility	(5) lap	(6) opponent
	13. 船		14. 部分、一部		
(1) cereal	(2) craft	(3) deposit	(4) pastry	(5) portion	(6) registration
	15. 移行、移り変わり		16. 群れ		
(1) complaint	(2) cone	(3) flock	(4) leadership	(5) temptation	(6) transition
	17. どんと突き当てる		18. 広くする		
(1) bump	(2) confront	(3) graduate	(4) promote	(5) scan	(6) widen
	19. 促す、刺激する		20. 弁解する、嘆願する		
(1) arouse	(2) clash	(3) invade	(4) plead	(5) prompt	(6) soak
	21. 仲直りさせる		22. じゃまする、妨げる		
(1) conclude	(2) hinder	(3) murmur	(4) reconcile	(5) stagger	(6) weave
	23. 購入する、買う		24. 再び始める		
(1) alternate	(2) collapse	(3) fetch	(4) pat	(5) purchase	(6) resume
	25. 論理的な		26. 中立の		
(1) dense	(2) logical	(3) neutral	(4) partial	(5) residential	(6) spiritual
	27. 単数の		28. ことばの、言語の		
(1) administrative	(2) atomic	(3) concrete	(4) frank	(5) linguistic	(6) singular
	29. ただ･･･だけ、単に		30. 徐々に		
(1) gradually	(2) nearby	(3) necessarily	(4) occasionally	(5) solely	(6) technically

	1. 大工		2. 姪（めい）		
(1) brow	(2) carpenter	(3) closet	(4) eyelid	(5) niece	(6) tailor
	3. 酒類		4. 仲間意識、連帯感		
(1) consciousness	(2) fellowship	(3) liquor	(4) observer	(5) saucer	(6) vitality
	5. 石油		6. 愚かさ		
(1) capability	(2) continuity	(3) illusion	(4) petroleum	(5) resident	(6) stupidity
	7. 訂正		8. 注射		
(1) correction	(2) disposition	(3) heir	(4) injection	(5) moss	(6) recollection
	9. 有機体		10. 身分証明になるもの		
(1) accumulation	(2) equality	(3) heritage	(4) identification	(5) organism	(6) pulse
	11. 優れていること		12. 群れ		
(1) excellence	(2) furnace	(3) kidney	(4) nap	(5) swarm	(6) thermometer
	13.（犬や猫の）手		14. 類似		
(1) anniversary	(2) biography	(3) paw	(4) postage	(5) resemblance	(6) simplicity
	15. 検査官、監査人		16. 融合、統合		
(1) armor	(2) brim	(3) inspector	(4) integration	(5) psychiatry	(6) supplement
	17. いたずら、わるさ		18. 回復すること、復旧		
(1) claw	(2) collision	(3) courtesy	(4) epoch	(5) mischief	(6) restoration
	19. ぐるぐる巻く、渦巻く		20. 追い払う、撃退する		
(1) blink	(2) chuckle	(3) heighten	(4) repel	(5) sob	(6) whirl
	21. 歩きまわる、ぶらつく		22. 絞る		
(1) coincide	(2) insulate	(3) marvel	(4) overwhelm	(5) roam	(6) wring
	23. 優雅な、しとやかな		24. 憲法の、合憲の		
(1) constitutional	(2) emphatic	(3) graceful	(4) monotonous	(5) wasteful	(6) yearly
	25. 遺伝子の、遺伝学的な		26. 半狂乱となった、血迷った		
(1) adjective	(2) collective	(3) considerate	(4) eloquent	(5) frantic	(6) genetic
	27. 財政上の、会計の		28. 死ぬことになっている、死を免れない		
(1) fiscal	(2) mortal	(3) productive	(4) republican	(5) sunny	(6) underground
	29. 統計的な、統計上の		30. もうけになる、有利な		
(1) agreeable	(2) clinical	(3) honorable	(4) profitable	(5) prospective	(6) statistical

	1. おんどり		2. 様々な色の石やガラスの小片を組み合わせた模様		
(1) cock	(2) documentary	(3) hose	(4) mosaic	(5) oyster	(6) seller
	3. 競争、対抗		4. 電子レンジ		
(1) auction	(2) aura	(3) chord	(4) container	(5) microwave	(6) rivalry
	5. 遺伝		6. 精密な検査		
(1) flexibility	(2) heredity	(3) presidency	(4) scrutiny	(5) specialty	(6) testimony
	7. 熟慮、審議		8. 密集、混雑		
(1) agitation	(2) congestion	(3) deliberation	(4) fracture	(5) intersection	(6) lapse
	9. 演繹（えんえき）、控除		10. 関連、適切さ		
(1) deduction	(2) dwarf	(3) limestone	(4) plague	(5) plank	(6) relevance
	11. 肺炎		12. まひ、中風		
(1) clan	(2) granite	(3) paralysis	(4) pneumonia	(5) rouge	(6) sabotage
	13. 研究員		14. 貯水池、貯水ダム		
(1) crab	(2) foreman	(3) motto	(4) researcher	(5) reservoir	(6) trout
	15. かたわらへよける		16. 深くする、濃くする		
(1) deepen	(2) dissatisfy	(3) imprint	(4) pinpoint	(5) shuffle	(6) sidestep
	17. 包む、覆う		18.（水などを）どっと流す		
(1) dodge	(2) envelop	(3) flop	(4) flush	(5) perch	(6) sip
	19. 憤慨させる、怒らせる		20. まごつかせる、うろたえさせる		
(1) bewilder	(2) dangle	(3) flicker	(4) gush	(5) inflame	(6) launder
	21. 混乱させる、分裂させる		22. 起訴する、告発させる		
(1) brood	(2) clog	(3) disrupt	(4) distrust	(5) prosecute	(6) wade
	23. 火山の、火山性の		24. 協会の、制度上の		
(1) imaginative	(2) incapable	(3) institutional	(4) responsive	(5) selective	(6) volcanic
	25. 陶器の		26. 無効の、～を欠いている		
(1) affirmative	(2) ceramic	(3) intolerable	(4) narcotic	(5) psychiatric	(6) void
	27. 潮の		28. 弱い、衰弱した		
(1) feeble	(2) frontal	(3) literal	(4) surgical	(5) tidal	(6) tribal
	29. 経済的に、節約して		30. 根本的に、本質的に		
(1) aptly	(2) economically	(3) fundamentally	(4) genuinely	(5) immensely	(6) radically

	1. 遺伝学者		2. 天文学者		
(1) astronomer	(2) censor	(3) entrepreneur	(4) geneticist	(5) plotter	(6) rescuer
	3. 大昔、古代、古さ		4. 誤った管理、不始末		
(1) antiquity	(2) cholesterol	(3) daisy	(4) mismanagement	(5) paradox	(6) toughness
	5. 怠慢、不注意		6. 階級組織、階級制度		
(1) breakthrough	(2) hierarchy	(3) landmark	(4) liaison	(5) maxim	(6) negligence
	7. 施行、執行		8. 儀礼、典礼		
(1) anesthesia	(2) bait	(3) enforcement	(4) pretext	(5) propensity	(6) protocol
	9. 公的な命令、指令		10. 性質、気質		
(1) affiliation	(2) deprivation	(3) disposition	(4) injunction	(5) recession	(6) remission
	11. ポプラの一種の樹木		12. たか		
(1) adage	(2) aspen	(3) cub	(4) flair	(5) hawk	(6) tract
	13. 石切り場、採石場		14. 雪崩(なだれ)		
(1) advent	(2) avalanche	(3) epic	(4) myriad	(5) periphery	(6) quarry
	15. 色、色合い		16. がらくた、くず物		
(1) cadence	(2) composure	(3) hue	(4) influx	(5) junk	(6) quirk
	17. 幻覚		18. 敵、反対者		
(1) adversary	(2) chronicle	(3) exploitation	(4) hallucination	(5) pesticide	(6) retrospect
	19. 避ける、防ぐ		20. だんだん小さくなる		
(1) avert	(2) bestow	(3) dwindle	(4) embody	(5) profess	(6) subsidize
	21. 好奇心をそそる		22. 混乱させる、ろうばいさせる		
(1) advocate	(2) confound	(3) galvanize	(4) intrigue	(5) manipulate	(6) wither
	23. すり切らす、ほぐれさせる		24. 突く、刺す		
(1) abate	(2) augment	(3) baffle	(4) fray	(5) laud	(6) prod
	25. 思慮深い、巧妙な		26. ～次元の		
(1) dimensional	(2) equitable	(3) impervious	(4) lethal	(5) politic	(6) regal
	27. 巨大な、非常に大きい		28. 気の合う、適した		
(1) colossal	(2) congenial	(3) elusive	(4) implausible	(5) implicit	(6) pathological
	29. 軽薄な、容易な		30. 風変わりな、奇妙な		
(1) analogous	(2) cumulative	(3) eccentric	(4) facile	(5) prone	(6) synthetic

Appendix G. Productive test

Q.次の日本語に合うようにカッコの中に適切な英語を書きなさい。　学籍番号（　　）　名前（　　）

（ヒントの英語を使って答えること。ただし、ヒントを使用して答えられない場合には、他の言い方で表現してみること。）

No.	日本語	ヒント	英語	ヒントを使わない英文
1	学園祭は来月行われる	place	The school festival will (　　) next month.	
2	やらなくてはならいことを すぐにやりなさい	thing	(　　) you have to do at once.	
3	あなたの忠告は彼らには 何の効果もない	effect	Your advice (　　) them.	
4	彼は２人分の仕事をやった	work	He (　　) of two men.	
5	ごゆっくり	time	(　　) .	
6	私は大きな決定を下した	decision	I (　　).	
7	よくやったな	job	You (　　)!	
8	私は彼に質問をした	question	I (　　).	
9	彼はそのマラソンに参加した	part	He (　　) the marathon.	
10	彼女は首を横に振った	head	she (　　).	
11	ドアを開けて	door	(　　).	
12	私はハムレットの役を演じた	role	I (　　) Hamlet.	

No.	日本語	ヒント	英語	ヒントを使わない英文
13	道を譲って救急車を通せ	way	(　　) the ambulance.	
14	正しいことを言いなさい	thing	(　　).	
15	私がそういうまで行動しないように	action	(　　) until I tell you to.	
16	彼のメールはわけがわからない	sense	His mail does not (　　) to me.	
17	彼は私達の家にやっとのことでたどり着いた	way	He (　　) to our house.	
18	そのような犯罪を防ぐための手段を講じなくてはならない	step	We must (　　) to prevent such crimes.	
19	お体を大事に	care	(　　).	
20	私の質問に答えてください	question	Please (　　).	
21	彼は時間厳守を主義とする（モットーとする）	point	He (　　) being on time.	
22	それは私にとってたいしたことではない	difference	It (　　) to me.	
23	彼女は自分の立場を十分に利用した	advantage	She (　　) her position.	
24	事の次第を話してください	story	(　　), please.	
25	数学の問題を解いた	problem	I (　　).	
26	兄は去年その会社に秘書としての仕事を得た	job	My brother (　　) as a secretary with the company last year.	

No.	日本語	ヒント	英語	ヒントを使わない英文
27	君は作文でいくつか綴りを間違えた	mistake	You ( ) in your essay.	
28	昨日ビデオゲームをして遊んだ	game	I ( ) yesterday.	
29	彼を探し出すためにあらゆる努力をしよう	effort	I will ( ) to find him.	
30	この患者さんたちは歩行が困難だ	trouble	These patients ( ) walking.	
31	彼は自分の手で彼女の手を握った	hand	He ( ) in his.	
32	彼は他人の感情には全く注意を払わない	attention	He ( ) others' feelings.	
33	目を閉じなさい	eye	( ).	
34	君は英語がものすごく上達しているね	progress	You are ( ) in English.	
35	彼は日本でお金をたくさん儲けた	money	He ( ) in Japan.	
36	彼はその企画がうまくいくと楽観している	view, optimistic	He ( ) the project.	
37	その大学のことで何か情報を与えていただけますか？	information	Can you ( ) about the college?	
38	そのドアを閉めなさい	door	( ).	
39	この新たなシステムは女性達により大きな機会を与える	opportunity	The new system ( ) to women.	
40	息子のために本を書いた	book	I ( ) for my son.	

No.	日本語	ヒント	英語	ヒントを使わない英文
41	彼女は彼の後任を見つけるという問題を持ち出した	question	She (　　) finding his successor.	
42	都市に税を支払っている	tax	We (　　) to our city.	
43	何か他のものをちょっと見せてくれませんか？	look	Can I (　　) some others?	
44	その問題の討論のために会が催された	meeting	(　　) to discuss the question.	
45	私達は寄付でお金を調達した（こしらえた）	money	We (　　) by subscription.	
46	職業は慎重に選ばなければならない	choice	You must (　　) of occupation.	
47	彼女はいつも本当のことをいうとは限らない	truth	She doesn't always (　　).	
48	こんなことをした理由を言いなさい	reason	Will you (　　) for doing this?	
49	私は彼と握手をした	hand	I (　　) him.	
50	彼に損害賠償を求めた	claim	I (　　) damages against him.	
51	日本経済は改善の兆しを見せている	sign	Japanese economy (　　) improvement.	
52	目を開けなさい	eye	(　　).	
53	例をあげてくれませんか？	example	Can you (　　)?	
54	航空便で手紙を彼に送った	letter	I (　　) to him by airmail.	

No.	日本語	ヒント	英語	ヒントを使わない英文
55	ベンチャー投資家は進んで危険を冒さなければならない	risk	Venture Capitalists must be willing to ( ).	
56	夫が仕事を失った！	job	My husband has ( )!	
57	私はパーティーであるスペイン人の女性と親しくなった	friend	I ( ) an Spanish woman at the party.	
58	今はお答えを差し上げることはできません	answer	I cannot ( ) now.	
59	ファーストフードを食べすぎてはいけないよ	food	Don't ( ).	
60	彼女は学校で英会話のレッスンをしている	lesson	She ( ) in English conversation at school.	
61	彼は伊藤先生からピアノのレッスンを受けている	lesson	He is ( ) from Ms. Ito.	
62	だれに彼の代わりができるだろうか？	place	Who could ( )?	
63	この仕事は時間がかかるぞ	time	I am afraid this task will ( ).	
64	彼は妻の言い分の見方をした	part	He ( ).	
65	私はその会議で重要な役割を演じた	role	I ( ) at the meeting.	
66	私は出世した	way	I ( ) in the world.	
67	赤ちゃんがあるいた！	step	The baby ( ).	
68	彼は弟をとても可愛がっている	care	He ( ) his little brother.	

Appendix H. Receptive test

Q. 次のカッコ内に入れるのに最も適切な語を a, b, c から 1 つ選び，記号で答えなさい。

1. The school festival will (　　) place next month.
   a. come　b. take　c. open
2. (　　) things you have to do at once.
   a. Do　b. Start　c. Be
3. Your advice (　　) no effect on them.
   a. is　b. has　c. makes
4. He (　　) the work of two men.
   a. did　b. was　c. made
5. (　　) your time.
   a. Use　b. Pass　c. Take
6. I (　　) a big decision.
   a. made　b. got　c. did
7. You (　　) a good job!
   a. did　b. were　c. had
8. I (　　) him a question.
   a. made　b. took　c. asked
9. He (　　) part in the marathon.
   a. attended　b. took　c. joined
10. She (　　) her head.
    a. knocked　b. waved　c. shook
11. (　　) the door.
    a. Free　b. Open　c. Clear
12. I (　　) the role of Hamlet.
    a. was　b. played　c. made
13. (　　) way for the ambulance.
    a. Make　b. Get　c. Take
14. (　　) the right things.
    a. Tell　b. Pronounce　c. Say
15. (　　) no action until I tell you to.
    a. Take　b. Do　c. Make
16. His mail does not (　　) sense to me.
    a. mean　b. understand　c. make
17. He (　　) his way to our house.
    a. arrived　b. found　c. got

18. We must ( ) steps to prevent such crimes.

a. do b. put c. take

19. ( ) care of yourself.

a. Be b. Take c. Use

20. Please ( ) my question.

a. answer b. reply c. take

21. He ( ) a great point of being on time.

a. is b. makes c. puts

22. It ( ) no difference to me.

a. is b. makes c. takes

23. She ( ) full advantage of her position.

a. put b. took c. used

24. ( ) me the story, please.

a. Speak b. Talk c. Tell

25. I ( ) a math problem.

a. cleared b. proved c. solved

26. My brother ( ) a job as a secretary with the company last year.

a. took b. got c. seized

27. You ( ) several spelling mistakes in your essay.

a. did b. got c. made

28. I ( ) a video game yesterday.

a. did b. played c. took

29. I will ( ) every effort to find him.

a. do b. make c. try

30. These patients ( ) trouble walking.

a. are b. have c. get

31. He ( ) her hand in his.

a. folded b. gained c. held

32. He ( ) no attention to others' feelings.

a. makes b. pays c. takes

33. ( ) your eyes.

a. Close b. Fasten c. Stop

34. You are ( ) a very good progress in English.

a. doing b. getting c. making

35. He ( ) a lot of money in Japan.

a. did b. laid c. made

36. He ( ) an optimistic view of the project.

a. does b. makes c. takes

37. Can you ( ) me any information about the college?

a. give b. provide c. say

38. ( ) the door.

a. Close b. Disclose c. Secure

39. The new system ( ) greater opportunities to women.

a. gives b. has c. makes

40. I ( ) a book for my son.

a. took b. made c. wrote

41. She ( ) the question of finding his successor.

a. brought b. gave c. raised

42. We ( ) taxes to our city.

a. pay b. put c. spend

43. Can I ( ) a quick look at some others?

a. show b. take c. throw

44. The meeting was ( ) to discuss the question.

a. done b. held c. set

45. We ( ) money by subscription.

a. drew b. raised c. turned

46. You must ( ) a careful choice of occupation.

a. decide b. determine c. make

47. She doesn't always ( ) the truth.

a. say b. talk c. tell

48. Will you ( ) me your reasons for doing this?

a. get b. give c. speak

49. I ( ) hands with him.

a. got b. shook c. waved

50. I ( ) a claim for damages against him.

a. asked b. called c. made

51. Japanese economy ( ) signs of improvement.

a. looks b. shows c. views

52. ( ) your eyes.

a. Open b. Pick c. Unclose

53. Can you ( ) me an example?

a. follow b. hold c. give

54. I ( ) a letter to him by airmail.

a. threw b. sent c. wrote

55. Venture Capitalists must be willing to ( ) risks.

a. go b. meet c. take

56. My husband has ( ) his job!

a. dropped b. fired c. lost

57. I ( ) friends with a Spanish woman at the party.

a. became b. got c. made

58. I cannot ( ) you an answer now.

a. give b. make c. take

59. Don't ( ) too much fast food.

a. eat b. feed c. put

60. She ( ) lessons in English conversation at school.

a. does b. gives c. makes

61. He is ( ) piano lessons from Ms. Ito.

a. getting b. taking c. studying

62. Who could ( ) his place?

a. change b. do c. take

63. I am afraid this task will ( ) time.

a. have b. make c. take

64. He ( ) his wife's part.

a. had b. took c. understood

65. I ( ) an important role at the meeting.

a. was b. made c. played

66. I ( ) my way in the world.

a. made b. stepped c. succeeded

67. The baby ( ) a step.

a. made b. took c. walked

68. He ( ) good care of his little brother.

a. looks b. loves c. takes

Appendix I. Questionnaire

Questionnaire

This is to survey the acceptability and the intelligibility of the English sentences translated from Japanese by the Japanese. For your reference, the model sentences are also given (No. 1 - No. 29).

Personal information
Please tick or write in the parenthesis.

Gender: ☐male ☐female

Age: ☐15-20 ☐21-25 ☐26-30 ☐31-35 ☐36-40 ☐40-45
☐46-50 ☐51-55 ☐56-60 ☐61-65 ☐66-70 ☐over 70

Your nationality: ( )
Your native language(s): ( )
How long have you been in Japan? ( )

Q.
If you think the following sentences are **acceptable**, please write **A** in the parenthesis.
If you think the following sentences are **intelligible but not acceptable**, please write **B** in the parenthesis.
If you think the following sentences are **not intelligible**, please write **C** in the parenthesis.

1. The school festival will take place next month.
   (1). The school festival will open next month. ( )
   (2). The school festival will be placed next month. ( )

2. Your advice has no effect on them.
   (1). Your advice doesn't give effect on them. ( )
   (2). Your advice doesn't make effect on them. ( )
   (3). Your advice doesn't take effect on them. ( )

3. Take your time.
   (1). Use your time. ( ) (2). Have your time. ( )
   (3). Spend your time. ( ) (4). Make your time. ( )

4. I made a big decision.
   (1). I did a big decision. ( ) (2). I had a big decision. ( )
   (3). I decided a big decision. ( ) (4). I decided a big point. ( )
   (5). I decided a big thing. ( )

5. You did a good job!
   (1). You had a good job! ( )
   (2). You brought about a good job! ( )
   (3). You worked a good job! ( )

6. I asked him a question.
   (1). I threw him a question. ( ) (2). I gave him a question. ( )
   (3). I made him a question. ( )

7. She shook her head.
(1). She turned her head. ( ) (2). She swung her head. ( )

8. I played the role of Hamlet.
(1). I took a role of Hamlet. ( )

9. Make way for the ambulance.
(1). Give way for the ambulance. ( )
(2). Make the way for the ambulance. ( )
(3). Make a way for the ambulance. ( )
(4). Make way to the ambulance. ( )

10. Take no action until I tell you to.
(1). Don't do action until I tell you to. ( )
(2). Make no action until I tell you to. ( )

11. His mail doesn't make sense to me.
(1). His mail doesn't make a sense to me. ( )
(2). His mail doesn't make the sense to me. ( )
(3). His mail doesn't have sense to me. ( )
(4). His mail doesn't take a sense to me. ( )

12. He found his way to our house.
(1). He made his way to our house. ( )
(2). He got the way to our house. ( )

13. We must take steps to prevent such crimes.
(1). We must take step to prevent such crimes. ( )
(2). We must take a step to prevent such crimes. ( )

14. Take care of yourself.
(1). Take care of your body. ( ) (2). Take care of your health. ( )

15. Please answer my question.
(1). Please answer to my question. ( )

16. He makes a great point of being on time.
(1). He has a great point of being on time. ( )
(2). He takes a great point of being on time. ( )
(3). He is a great point of being on time. ( )

17. She took full advantage of her position.
(1). She advantaged her position. ( )

18. I solved a math problem.
(1). I answered a math problem. ( ) (2). I resolved a math problem. ( )

19. My brother got a job as a secretary with the company last year.
(1). My brother had a job as a secretary with the company last year. ( )

20. You made several spelling mistakes in your essay.
(1). You had several spelling mistakes in your essay. ( )
(2). You took several spelling mistakes in your essay. ( )

21. I will make every effort to find him.
(1). I will do every effort to find him. ( )
(2). I will spend every effort to find him. ( )

22. These patients have trouble walking.
(1). These patients are in the trouble walking. ( )
(2). These patients take trouble in walking. ( )
(3). These patients get trouble in walking. ( )

23. He held her hand in his.
(1). He shook her hand in his. ( ) (2). He shook hands in his. ( )

24. He pays no attention to others' feelings.
(1). He has no attention to others' feelings. ( )
(2). He takes no attention to others' feelings. ( )

25. She raised the question of finding his successor.
(1). She took the question of finding his successor. ( )
(2). She had the question of finding his successor. ( )
(3). She gave the question of finding his successor. ( )

26. The meeting was held to discuss the question.
(1). The meeting was open to discuss the question. ( )
(2). The meeting was opened to discuss the question. ( )
(3). The meeting was made to discuss the question. ( )

27. Can you give me an example?
(1). Can you raise an example? ( ) (2). Can you pick up an example? ( )

28. I cannot give you an answer now.
(1). I cannot tell you an answer now. ( )

29. I played an important role at the meeting.
(1). I performed an important role at the meeting. ( )
(2). I acted an important role at the meeting. ( )
(3). I took an important role at the meeting. ( )

Thank you very much for your cooperation
Taeko KOYA

Appendix J. Results of Questionnaire

No.	1		2			3				4					5			6			7		8	9				10		11				12		13		14		15	16			17	18		19	20		21		22			23		24		25			26			27		28	29		
id	(1)	(2)	(1)	(2)	(3)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(1)	(1)	(2)	(3)	(4)	(1)	(2)	(1)	(2)	(3)	(4)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(1)	(2)	(3)	(1)	(1)	(2)	(1)	(1)	(2)	(1)	(2)	(1)	(2)	(3)	(1)	(2)	(1)	(2)	(1)	(2)	(3)	(1)	(2)	(1)	(1)	(2)	(3)
0	B	C	C	C	C	C	C	C	C	B	C	B	A	A	C	C	B	A	A	B	C	C	B	A	B	B	B	B	B	B	B	B	C	A	B	B	B	A	A	B	B	B	C	C	A	A	C	A	B	B	A	C	B	B	C	C	B	B	C	C	B	B	B	A	A	B	A	A	B	A
1	B	C	C	C	B	C	C	C	C	B	B	C	C	C	B	C	C	A	B	C	B	C	B	C	B	B	C	B	C	B	B	C	C	A	C	B	B	B	A	B	B	C	C	C	A	B	B	A	C	B	C	C	B	C	C	C	C	C	B	C	C	C	C	B	B	C	B	B	A	B	B
2	A	B	B	B	B	C	C	C	C	B	B	B	B	B	C	C	B	A	A	B	C	C	B	A	B	A	B	B	B	B	B	B	B	A	C	B	B	B	A	B	B	C	C	C	A	A	B	B	B	A	B	C	C	C	B	C	B	B	C	C	B	C	B	B	A	B	A	B	B
3	B	C	C	C	C	C	C	C	C	B	B	B	B	A	C	C	C	A	B	C	C	C	B	A	C	B	C	B	C	B	B	B	C	A	C	A	A	C	A	B	C	C	C	C	A	A	A	A	C	B	B	C	C	C	C	C	C	C	C	C	C	C	B	C	C	B	A	A	B	C
4	A	B	C	C	C	C	B	C	C	B	A	B	B	B	C	B	C	B	B	C	C	C	B	B	B	A	B	B	B	B	B	C	C	A	C	B	A	B	B	B	B	C	C	C	A	B	C	A	B	B	B	C	C	B	C	C	A	B	B	C	C	C	C	B	C	B	C	B	B	B	B
5	B	C	B	C	C	C	A	C	C	A	C	B	C	C	C	C	C	B	A	B	C	C	A	A	B	B	B	B	B	B	C	B	C	C	C	A	B	B	B	C	B	C	C	C	B	C	B	A	C	A	C	B	C	C	C	C	C	B	B	C	B	C	C	C	B	C	C	B	A	B	B
6	B	C	B	B	C	C	C	C	C	B	C	B	B	B	C	B	C	A	B	C	C	C	B	A	C	C	C	B	B	B	B	C	C	A	C	B	B	B	A	B	C	C	C	C	B	B	B	A	C	C	C	C	C	C	C	C	C	C	C	C	B	C	B	C	B	B	A	A	B	B
7	A	C	C	B	C	C	B	B	C	B	C	A	C	A	B	B	C	B	A	B	B	C	B	A	B	A	C	B	A	B	B	B	C	A	C	B	B	B	A	B	B	B	C	C	A	B	A	A	B	A	B	C	B	C	C	C	C	B	C	C	B	C	B	A	B	C	A	A	B	A
8	B	C	C	B	B	B	C	B	C	C	B	B	B	B	B	B	B	B	A	C	C	C	B	A	B	B	C	B	B	B	B	B	C	A	C	B	B	B	A	B	B	B	C	C	A	B	A	A	B	B	A	C	B	B	C	C	B	B	B	B	B	A	B	B	B	C	B	A	C	B
9	B	C	B	B	C	C	C	C	C	B	B	B	B	B	B	C	B	A	B	C	C	B	B	A	B	B	B	B	B	B	C	C	C	A	C	B	B	A	A	B	C	C	C	C	A	B	B	A	C	B	C	C	C	C	B	C	B	B	C	C	C	B	B	C	C	C	B	A	B	C
10	B	B	C	C	C	B	C	C	B	B	B	B	B	B	B	C	B	C	C	C	B	A	B	B	B	B	B	A	A	B	B	B	B	A	B	B	B	A	A	B	B	A	B	C	A	A	A	A	B	B	B	B	B	B	C	C	B	A	B	B	C	A	A	A	B	B	A	A	B	A
11	B	C	C	B	B	C	B	C	C	B	A	C	B	C	C	C	C	A	A	C	C	C	B	B	B	B	B	B	B	B	C	C	C	A	B	B	B	A	A	B	C	C	C	C	A	A	B	A	B	B	B	C	B	C	B	C	B	B	B	C	B	B	B	A	B	C	A	A	B	B
12	C	A	B	A	C	C	B	C	C	B	C	C	A	C	C	C	C	B	A	C	C	C	C	A	C	C	C	B	A	A	C	C	C	A	C	B	C	B	B	A	C	C	C	C	B	C	C	A	C	A	C	C	C	C	C	C	C	A	B	C	A	B	B	A	A	*	C	C	C	B
13	B	C	C	B	B	C	C	C	C	B	C	B	B	B	C	B	C	A	A	C	C	C	B	B	C	C	C	B	B	B	B	B	C	A	B	B	B	A	A	B	C	C	C	B	A	B	C	A	B	B	B	C	C	C	C	C	C	B	B	C	C	B	C	A	B	B	B	B	B	B
14	C	C	B	B	C	C	C	C	C	B	C	B	C	B	C	C	C	B	B	C	C	C	B	B	B	A	C	B	B	B	B	B	C	A	B	B	C	B	A	B	C	C	C	C	A	B	C	A	B	B	C	B	C	B	C	C	B	B	C	C	B	C	B	B	B	C	B	C	C	B
15	B	C	C	B	C	C	C	C	C	B	C	B	B	B	C	B	C	A	A	C	C	C	B	B	C	A	C	B	B	B	B	B	C	A	B	B	B	B	A	B	C	C	C	B	A	B	C	A	B	B	B	C	C	C	C	C	C	B	B	C	C	B	C	A	B	B	B	A	B	B
16	C	A	B	A	C	C	C	C	C	B	C	A	C	C	C	C	B	B	A	C	C	C	C	A	C	C	C	B	A	A	C	C	C	A	C	B	C	B	B	A	C	C	C	C	B	C	C	A	C	A	C	C	C	C	C	C	C	A	B	C	A	B	B	A	A	A	A	C	C	B
17	A	C	C	A	C	C	A	A	C	C	A	C	B	A	C	B	C	B	A	C	A	B	A	A	A	C	C	C	C	B	C	C	C	C	A	C	A	A	A	C	A	C	C	C	A	B	A	A	C	A	B	C	A	A	C	C	C	A	C	A	A	C	A	A	B	A	B	A	B	A
18	A	C	C	B	A	B	A	B	C	B	C	B	B	A	C	B	A	B	A	C	B	A	B	A	C	B	A	B	B	A	A	B	C	B	B	A	C	A	C	A	B	B	B	C	C	A	A	B	A	C	B	A	B	C	A	C	A	B	A	B	C	A	B	C	A	B	A	C	A	B
19	A	C	A	B	C	B	A	C	A	B	A	C	B	A	C	A	B	C	A	C	B	C	A	B	A	C	C	A	B	A	B	C	B	C	A	C	C	A	A	A	B	C	A	A	C	A	A	C	A	A	C	B	A	A	C	B	B	C	A	B	C	A	C	B	C	A	C	B	A	C	B
20	B	A	B	A	C	B	A	B	C	C	A	C	C	A	B	A	B	C	C	B	B	C	A	A	C	B	B	A	C	A	A	C	C	C	A	B	C	B	C	C	C	A	B	A	C	A	C	A	A	B	A	C	A	B	C	B	B	A	A	C	A	B	C	B	C	A	A	A	C	A
21	A	B	C	B	A	C	B	A	C	C	C	C	C	A	C	C	A	B	A	C	A	C	B	C	A	C	C	A	C	B	B	A	B	A	C	B	A	B	A	C	C	A	C	A	A	C	A	A	C	A	A	C	C	C	A	A	A	C	C	B	A	B	A	C	*	*	*	*	*	*
22	B	C	B	B	C	B	B	B	B	B	A	C	B	B	C	C	B	C	B	B	B	B	B	B	B	B	A	C	B	B	A	B	*	B	A	B	B	B	B	B	C	C	C	B	C	B	A	A	B	B	B	B	B	B	B	B	A	B	B	B	B	C	B	C	B	B	B	B	B	B
23	C	A	B	C	A	C	C	A	C	B	C	A	C	C	A	C	B	B	A	C	C	C	C	A	C	C	C	B	C	A	C	C	C	A	C	B	C	B	B	A	C	C	C	C	B	C	C	A	C	A	C	C	C	C	C	C	C	A	B	C	A	B	B	A	A	A	C	C	B
24	A	C	A	B	C	B	A	B	C	B	B	B	B	A	A	C	B	B	A	C	B	C	C	A	C	A	A	A	A	A	B	C	C	C	A	B	A	B	A	B	A	C	C	A	B	B	A	B	A	B	A	C	B	C	*	A	A	B	A	A	*	*	*	*	*	*	*	*	*
25	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	C	B	B	C	B	B	A	B	B	B	C	B	B	B	B	C	C	A	A	B	A	C	A	B	A	C	C	C	A	B	A	A	C	B	B	A	C	B	C	C	B	A	C	A	B	B	A	B	A	A	A	A	B	A
26	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	A	B	B	B	B	B	B	B	B	C	B	B	B	B	B	C	A	B	B	B	A	A	B	B	B	B	B	A	A	A	A	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	A	B	B	B	B
27	B	A	C	A	C	A	B	A	B	C	B	B	B	A	C	C	C	B	B	C	A	A	A	B	C	C	C	C	C	A	C	C	C	B	C	C	A	A	B	B	C	C	C	C	A	B	A	A	B	C	C	C	B	C	A	A	A	B	B	C	C	B	A	B	A	C	A	C	A
28	B	A	C	C	C	A	A	A	B	C	A	C	A	A	C	C	C	C	A	A	C	C	A	A	A	A	A	B	B	B	B	B	B	A	A	C	C	A	C	A	B	C	C	C	A	B	A	A	B	B	A	B	A	A	A	C	C	B	C	A	B	C	B	A	B	B	B	A	A	A
29	A	A	B	A	B	A	B	C	B	C	B	B	A	A	C	A	B	C	A	A	C	B	A	A	A	B	B	B	A	B	C	C	B	A	B	B	A	B	B	A	A	C	C	A	A	A	C	A	B	B	A	B	B	B	B	C	A	A	B	B	A	C	C	A	A	C	B	B	B	A
30	B	A	A	A	C	A	B	B	B	C	A	B	B	A	C	C	B	A	B	B	C	B	A	A	B	B	B	B	A	B	C	C	C	A	B	B	A	B	B	A	A	B	C	A	A	A	C	A	B	C	A	B	B	C	B	C	A	A	B	A	A	C	B	A	A	B	A	B	A	A
31	A	A	B	A	C	A	A	C	B	C	A	B	B	A	C	C	B	A	A	B	C	B	A	A	A	B	A	B	B	B	B	B	B	A	B	B	B	B	B	A	A	B	B	A	A	A	C	A	B	B	A	A	C	C	B	B	A	B	B	B	B	C	C	A	B	C	A	B	A	B
32	A	A	B	B	B	B	A	A	C	C	A	B	A	A	C	C	C	B	B	B	A	B	A	B	C	C	C	C	C	B	C	C	C	A	C	C	A	B	B	B	C	C	C	C	A	B	A	A	B	C	C	C	C	C	A	B	B	A	C	B	C	C	B	A	C	B	C	B	C	A
33	B	A	B	A	B	A	A	A	*	C	A	C	A	A	C	C	C	C	B	C	A	C	A	A	C	A	C	B	C	C	C	C	B	A	A	C	C	B	B	A	B	B	C	C	A	B	A	A	B	B	A	B	A	A	A	C	C	C	C	A	A	C	C	A	C	C	C	C	B	A
34	B	A	C	A	C	A	B	C	B	C	A	B	B	A	C	C	B	A	A	B	C	B	A	A	B	B	A	B	A	B	C	C	C	A	B	B	A	B	B	A	A	C	C	A	A	A	C	A	B	B	A	B	C	C	B	C	A	A	B	B	A	C	C	A	A	C	B	B	B	A
35	B	C	B	B	B	C	C	C	C	B	B	B	B	B	C	C	C	B	B	C	B	B	B	B	B	B	C	B	B	B	B	C	A	C	B	B	A	A	B	B	B	C	B	B	A	A	A	B	B	B	B	B	B	C	B	B	C	C	C	B	A	B	B	A	B	B	B	B
36	B	C	B	B	C	B	C	C	C	C	B	B	C	C	C	C	B	C	B	C	C	C	B	C	A	B	C	C	B	B	C	C	C	B	C	C	B	B	B	B	B	C	C	C	B	C	C	A	C	C	C	A	C	C	B	C	A	A	C	A	C	C	C	B	C	C	A	B	C	B
37	B	C	C	B	C	B	B	B	B	C	C	C	C	B	B	B	C	A	A	B	B	B	B	C	B	A	B	C	A	C	C	C	C	B	B	C	B	B	B	B	B	B	C	C	A	B	B	A	C	C	C	C	C	C	B	C	A	A	B	B	A	B	B	A	A	A	A	C	A
38	A	A	C	A	C	B	B	B	B	B	A	B	A	A	C	C	C	A	A	A	A	C	A	A	B	A	B	B	B	A	B	A	B	B	B	B	C	C	A	B	B	B	B	A	B	C	A	C	C	B	B	B	B	C	A	A	B	A	A	A	A	A	B	C	C	A	B	A
39	B	A	C	A	C	A	B	C	B	C	A	B	A	A	A	A	A	A	A	A	C	C	B	A	B	A	A	B	A	B	C	B	B	A	B	B	B	A	A	B	A	A	B	B	A	A	B	C	A	B	B	B	C	C	C	C	C	B	B	B	B	B	C	C	B	B	C	B

Appendix K. Results of receptive collocation test

	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	017	018	019	020	021	022	023	024	025	026	027	028	029	030	031	032	033	034	035	036	037	038	039	040	041	042	043	044	045
01R	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	c	a	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	a	1	1
02R	1	1	1	1	1	1	c	c	1	1	1	1	1	1	1	1	1	b	1	c	1	c	b	1	b	1	1	1	1	1	1	1	c	1	c	1	1	1	1	b	c	b	b	1	1
03R	c	c	c	c	1	1	c	1	a	a	c	c	c	c	c	c	c	c	1	c	1	c	1	c	c	1	c	c	c	1	1	1	c	c	c	1	c	1	c	c	a	1	c	c	1
04R	1	1	1	1	c	c	1	c	1	c	1	c	1	b	1	c	1	1	c	b	c	1	c	1	1	1	1	1	c	1	c	1	1	1	c	c	1	1	c	c	1	c	1	1	1
05R	1	1	b	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
06R	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	b	b	b	1	b	1	1	1	1	b	b	b	b	1	b	1	1	1	c	1	b	b	b	1	1
07R	1	1	b	1	c	c	1	c	c	c	1	c	c	b	c	c	c	1	c	c	c	1	b	c	1	c	1	c	1	c	c	c	1	c	1	c	1	c	1	1	1	c	1	1	1
08R	1	1	b	1	1	b	1	1	1	1	a	1	1	1	1	1	a	1	1	1	1	1	1	1	1	c	1	a	1	1	b	1	a	a	1	1	a	1	1	1	1	1	b	1	1
09R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	c	1	1	c	a	1	1	c	1	1	1	1	1	1	1	1	1	1	c	c	1	1	1	1
10R	b	1	b	1	1	1	a	1	1	a	1	1	a	1	b	1	1	1	a	1	1	a	a	1	a	1	1	a	b	1	1	b	a	1	a	a	b	b	a	a	1	a	1	1	1
11R	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12R	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	c	1	c	1	a	1	1	1	1	c	1	c	1	c	c	1	a	1	1	1	1	1	1	1	a	1	1	1	1
13R	1	1	c	1	1	b	b	b	1	1	b	1	c	c	1	1	1	1	c	1	c	b	c	c	c	c	1	b	c	1	c	c	c	c	1	1	c	c	c	1	b	1	b	c	1
14R	a	1	b	a	a	a	1	a	1	1	a	a	1	a	a	a	a	1	a	a	1	a	a	1	b	1	1	a	a	a	a	1	1	1	1	a	a	b	b	b	a	1	a	a
15R	1	1	c	1	c	c	c	c	1	c	c	c	1	b	c	1	1	c	c	1	1	1	c	1	b	b	c	b	c	c	c	1	b	1	1	1	1	c	1	c	1	c	1	c	1
16R	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	b	b	1	a	1	1	1	1	1	a	1	1	1	1	b	1	1	1	1	1	1	1	1	1
17R	c	1	1	1	c	c	c	1	c	c	c	1	1	a	1	c	c	c	c	1	c	c	c	c	c	c	c	c	c	c	c	c	c	c	1	c	c	c	c	a	1	1	1	1	c
18R	1	1	b	1	b	b	1	b	1	1	1	1	b	1	1	1	1	1	1	1	1	1	b	a	b	b	1	b	1	b	1	c	a	1	1	1	1	1	b	1	b	1	1	b	b
19R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	1	1	a	1	1	1	1	1	a	1	1	1	1	a	1	1	1	1	a	1	1	1	1
20R	b	1	1	1	1	b	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	b	1	1	b	1	b	1	1	b	1	1	b	1	1	1	1	1	1	1	1	1	1	1
21R	1	1	c	a	c	1	1	a	c	1	1	1	1	c	c	1	a	1	1	1	c	1	1	c	c	1	1	c	1	c	1	c	1	1	c	c	1	1	1	1	1	1	1	c	1
22R	1	1	1	a	1	1	a	a	1	1	1	1	1	a	1	1	1	1	a	1	1	a	a	a	a	1	1	1	c	a	1	a	1	1	1	a	1	1	1	1	a	a	1	1	1
23R	1	1	1	1	1	1	1	a	1	1	1	1	1	c	c	1	1	1	1	1	1	1	c	1	a	1	c	1	c	1	1	1	a	1	1	1	1	1	1	c	a	1	c	1	1
24R	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25R	1	1	1	1	1	1	b	a	1	1	1	1	1	a	1	1	1	a	1	1	1	1	1	1	a	a	1	1	1	1	1	1	1	1	1	1	1	a	1	a	a	1	b	1	1
26R	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	a	a	1	1	a	1	a	1	1	1	1	1	a	1	1	a	1	1	1	1	a	1	1	1	1	1	1	1	1
27R	1	1	b	1	1	1	1	b	a	1	1	1	a	a	a	1	1	1	1	1	1	1	a	b	1	1	1	1	1	1	1	a	1	1	b	1	1	a	a	b	1	1	1	1	1
28R	1	1	1	1	1	c	1	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	1	c	1	1	a	1	1	1	1	c	1	1	1	a	1	1	1	c	1	1	1	1
29R	1	1	1	1	c	1	1	1	1	1	a	1	a	1	1	1	1	1	1	1	1	a	a	c	c	1	1	1	c	c	a	a	a	1	a	a	1	a	a	1	c	c	c	a	1
30R	c	1	1	1	c	1	1	1	c	a	c	a	a	c	1	1	1	1	1	1	1	1	c	1	1	1	1	1	c	1	1	1	1	1	1	1	a	1	1	a	a	1	1	1	1
31R	a	1	1	1	a	a	a	1	a	a	1	a	a	b	1	1	1	1	a	1	1	1	1	1	1	a	1	1	a	a	1	b	b	a	1	a	a	1	1	1	1	a	a	1	a
32R	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	a	1	1	1	a	1	1	1	1	a	1	1	1	c	1	a	a	a	1	c	1	c	1	a	c	1	1	1	1	c
33R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
34R	1	1	1	1	1	1	1	1	1	b	1	b	b	b	1	b	1	1	b	b	1	1	b	1	1	1	1	b	1	1	b	1	1	1	b	1	1	1	b	1	1	a	b	1	1
35R	1	1	b	1	1	b	1	1	1	1	1	1	1	1	b	1	1	b	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1
36R	b	1	b	1	1	b	b	b	b	b	1	1	b	1	b	1	b	1	1	1	b	1	a	1	b	b	1	1	b	b	1	1	1	1	b	1	b	1	b	1	1	b	1	1	b
37R	1	1	1	1	1	1	b	1	1	b	1	1	1	b	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	b	1
38R	1	1	1	1	1	1	1	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
39R	c	1	c	1	c	1	1	1	c	1	1	1	1	1	c	1	1	1	b	c	b	b	b	c	1	1	1	1	c	b	c	b	c	1	1	1	1	b	b	1	b	1	1	1	1
40R	a	1	1	1	a	b	1	1	1	b	1	1	b	b	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	a	1	1	a	1	1	1	1	1	1	1	1	1	b
41R	1	1	a	1	1	a	b	b	1	1	a	b	a	a	a	1	b	1	a	1	a	b	a	b	a	a	b	a	1	a	a	1	a	a	b	a	b	a	b	1	1	a	b	a	a
42R	b	1	1	1	b	1	1	1	1	1	1	b	1	b	1	1	c	1	1	1	1	1	1	1	c	1	1	1	1	b	1	1	c	1	1	1	1	1	1	1	c	c	c	1	1
43R	1	1	c	1	1	1	a	c	c	1	1	1	a	c	1	1	c	1	a	1	1	c	1	a	1	1	1	1	a	1	c	1	1	c	a	1	1	1	a	a	1	1	1	1	1
44R	1	1	1	1	1	1	a	1	1	1	c	1	1	1	c	1	1	1	c	1	1	c	c	1	c	1	1	1	c	a	a	c	1	1	1	1	1	1	1	1	1	1	c	1	1
45R	a	1	c	a	c	a	c	c	1	a	a	1	a	1	1	a	c	1	1	c	c	a	a	a	c	c	1	a	1	c	c	a	c	1	1	1	a	c	1	c	a	1	c	1	a
46R	1	1	a	1	a	b	1	1	b	1	1	1	a	b	1	1	1	1	1	1	a	a	a	b	a	b	1	1	a	a	1	1	1	1	1	1	1	a	a	a	a	b	1	1
47R	1	1	1	1	1	1	a	1	1	c	1	1	1	b	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1
48R	1	1	c	1	1	c	c	1	1	c	1	1	1	a	1	1	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	a	1	1	1	c	1	1	1	c	c	1	1	1
49R	1	1	c	1	1	1	a	1	1	1	1	1	1	c	c	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	1	1	1	1
50R	1	1	1	1	a	1	c	a	a	1	1	1	a	a	1	1	1	1	1	b	a	b	a	1	b	1	1	a	b	a	b	1	1	b	a	a	1	1	b	a	b	a	a	1
51R	1	1	a	1	1	1	1	c	1	1	1	1	a	1	1	1	1	1	1	c	1	c	c	1	1	a	a	1	1	c	a	1	c	1	c	1	1	c	1	1	c	c	1	1	1
52R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
53R	1	1	1	1	b	1	1	1	a	a	1	1	1	a	1	1	b	1	1	1	1	1	a	1	1	a	1	1	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1
54R	a	1	1	1	1	1	1	c	1	1	1	1	a	1	1	1	1	c	c	1	1	1	1	1	1	1	1	1	c	c	1	c	1	1	c	1	1	1	1	1	c	1	c	1	1
55R	1	1	1	1	1	1	1	1	1	b	1	1	1	a	1	b	1	1	1	1	1	1	b	1	1	a	1	1	b	1	b	1	1	1	1	b	1	1	1	1	b	1	1	1	b
56R	1	1	1	1	b	1	b	1	1	a	a	1	b	b	1	1	a	1	b	b	1	1	b	1	b	1	1	a	b	1	b	a	1	b	b	b	1	1	1	1	1	1	1	1	1
57R	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	b	1	1	1	1	1	1	a	b	b	1	a	1	1	b	a	1	1	b	1	a
58R	1	1	1	1	1	1	1	1	1	b	1	1	1	b	1	1	1	1	1	b	b	1	c	1	1	b	1	1	c	1	c	1	c	1	1	1	1	1	1	1	b	1	1	1	1
59R	1	1	1	1	1	1	1	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	1	1	1	1	1	c	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1
60R	c	1	a	a	1	1	a	1	a	1	1	1	1	c	a	1	c	1	a	c	1	a	a	a	c	a	1	a	1	1	c	c	1	1	c	1	c	a	c	a	c	a	1	c	1
61R	1	1	c	1		1	a	1	1	c	a	1	c	a	a	1	1	1	a	a	1	1	a	1	c	a	1	1	1	1	1	c	1	1	1	1	a	1	a	c	c	c	1	1	a
62R	1	1	a	1	a	a	1	1	1	1	1	1	a	b	a	1	1	1	1	1	1	1	a	a	a	a	1	1	a	1	b	a	b	1	1	a	a	a	1	a	a	1	1	1	1
63R	1	1	b	1	1	1	b	a	1	b	1	1	1	1	1	1	a	1	1	1	1	1	b	1	1	1	1	1	b	1	1	b	b	1	1	1	1	a	a	b	1	a	1	1	1
64R	1	1	c	1	c	1	1	c	1	c	1	1	c	a	1	1	1	1	a	c	1	1	c	c	1	c	c	1	c	a	c	c	a	c	1	c	c	1	1	c	a	c	1	c	1
65R	1	1	1	1	a	1	b	1	1	b	a	1	1	a	1	1	b	1	1	1	b	b	1	1	1	1	1	b	1	b	1	1	b	1	b	a	1	1	a	a	b	1	1	1	1
66R	1	1	b	1	b	1	1	1	1	c	1	1	c	b	b	1	b	1	b	b	1	b	c	c	b	1	1	1	c	b	1	1	c	b	c	b	1	b	c	c	c	c	c	1	b
67R	1	1	c	a	a	1	1	1	1	1	a	1	1	a	a	a	1	1	c	a	1	c	1	1	a	1	1	a	c	a	1	c	a	1	a	1	1	1	1	1	c	c	1	a	a
68R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

id	046	047	048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063	064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079	080	081	082	083	084	085	086	087	088	089	090
01R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	a	1	1	e	1	1	1	1	1	1	1	1	1	a	1	e	a	1	e	a	a	a	a	a	1	e	e	e
02R	1	b	1	1	1	1	1	1	1	b	1	1	1	1	e	1	1	e	1	1	1	b	1	1	1	1	1	1	1	e	1	1	1	b	e	1	b	e	1	1	b	1	1	e	1	b
03R	1	e	e	e	e	e	e	e	1	e	a	1	e	e	e	1	1	a	e	1	1	e	1	a	1	e	e	e	e	1	e	a	a	1	1	1	1	a	a	1	1	e	1	1	a
04R	0	1	1	1	e	1	1	1	1	1	e	1	e	1	b	1	1	e	e	e	e	e	b	b	b	e	1	1	e	1	1	1	e	1	b	e	b	1	1	b	b	b	e	b	b
05R	1	1	1	1	b	1	1	1	1	1	1	b	b	1	1	1	1	b	b	a	a	a	1	1	1	1	1	b	b	1	1	b	1	1	b	b	e	1	1	1	1	1	1	1	1
06R	1	e	1	1	1	1	1	1	b	1	e	1	b	1	b	b	1	b	b	b	b	b	b	1	1	b	b	b	b	b	b	b	1	b	1	e	b	1	1	e	b	1	1	b	b
07R	1	e	e	e	1	1	e	e	e	1	e	e	1	1	e	e	e	e	1	e	e	e	e	e	e	e	b	e	b	e	e	e	e	e	e	e	e	e	e	1	e	e	e	e	b
08R	1	1	1	1	1	1	b	b	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	b	1	1
09R	1	1	1	1	1	1	1	1	e	1	1	1	1	1	1	1	1	1	1	a	a	1	a	1	1	1	1	1	1	1	e	e	e	e	1	a	e	1	a	a	a	a	e	a	e
10R	1	1	a	1	1	e	b	1	1	a	1..	1	1	1	1	1	1	1	1	b	b	1	b	b	a	a	b	a	1	a	1	a	b	a	1	a	a	b	1	b	a	b	a	b	b
11R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12R	1	1	1	1	1	1	1	1	1	1	1	1	e	1	e	1	1	1	1	1	1	1	1	e	1	1	1	a	1	1	1	1	1	1	1	e	1	1	e	1	1	e	e	1	a	1
13R	1	e	e	e	1	b	b	e	e	b	1	e	e		e	e	b		e	a	b		e	e	e	b	b	e	e	b	e	e	e	e	b	b	b	b	e	e	b	e		b	
14R	1	b	1	1	a	a	1	1	1	1	1	a	1	1	a	1	a	a	1	a	a	a	1	a	a	1	a	b	a	a	a	1	a	a	1	b	1	a	a	b	a	1	1	b	a
15R	0	1	b	b	1	1	1	b	1	1	1	1	c	1	c	1	1	b	c	1	1	c	c	c	1	1	c	b	c	b	1	1	c	b	1	1	b	1	1	1	c	b	1	c	1
16R	1	1	1	b	1	1	1	1	b	1	1	1	1	1	1	a	1	b	1	b	b	a	a	a	a	1	b	b	1	1	1	a	b	1	b	b	1	b	b	b	a	a	b	b	b
17R	0	e	1	e	1	e	e	e	1	e	1	e	e	e	e	e	e	a	e	a	1	e	a	a	e	1	1	e	a	a	1	1	1	1	1	1	a	a	a	a	1	e	a	e	a
18R	0	1	1	1	1	1	1	1	1	1	1	1	1	1	b	b	1	a	a	1	1	b	1	1	1	1	1	1	1	1	1	b	b	b	a	a	1	a	a	1	a	1	a	b	a
19R	1	1	1	1	1	1	1	1	1	1	1	1	a	1	a	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	c	1	1	a	1	a	1	1	1	c	1	1	a
20R	1	1	1	1	1	1	1	1	1	1	1	e	1	1	1	1	1	1	e	1	1	1	1	1	1	1	1	1	1	1	1	1	1	e	e	1	1	1	1	1	1	1	e	1	1
21R	0	a	e	e	e	e	1	e	1	e	1	1	1	1	a	1	1	a	1	1	1	1	1	a	a	1	e	1	1	e	a	a	e	a	1	e	1	e	a	a	1	a	1	1	1
22R	1	a	1	a	1	1	1	a	1	1	a	e	a	1	a	e	e	e	1	1	a	a	1	a	e	1	1	a	e	a	1	a	a	a	a	e	a	1	a	e	a	a	e	a	a
23R	0	1	e	1	e	1	1	1	e	1	1	1	e	1	e	e	e	1	1	0	e	1	a	e	1	1	a	a	e	1	1	e	a	e	a	a	b	1	e	a	e	e	a	1	e
24R	1	1	1	b	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	b	1	1	1	b	a	b	1	1	1	1	1	b	1	1	b
25R	1	1	1	1	1	1	1	1	a	1	1	1	b	1	1	1	1	a	a	a	a	1	1	1	a	b	a	b	b	a	a	a	a	a	b	a	e		a	0	b	a	a	b	b	a
26R	1	1	1	a	1	1	1	1	1	1	1	1	1	1	a	1	c	1	a	1	a	a	c	1	1	1	1	a	b	1	1	1	1	a	1	a	1		a	c	1	c	1	a	1
27R	1	b	1	1	1	a	b	1	1	1	b	1	1	1	1	b	1	b	a	a	a	1	a	1	a	1	b	1	a	a	a	a	a	b	1	a	a	b	b	b	1	1	1	1	1
28R	1	e	1	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29R	1	1	1	1	e	e	1	1	e	1	1	1	a	1	e	1	1	e	e	1	e	a	e	1	a	e	e	e	1	1	e	e	e	e	a	e	1	e	1	1	a	1	e	1	1
30R	1	a	e	e	e	e	1	e	1	a	1	1	1	1	e	1	a	1	a	a	a	1	e	1	1	1	1	1	a	e	a	a	a	1	1	a	a	e	a	a	1	1	1	e	e
31R	0	1	1	1	1	1	1	a	1	1	a	1	1	1	1	1	a	1	a	a	b	1	1	1	1	b	a	a	1	1	b	a	b	1	1	1	a	b	1	b	1	1	a	1	a
32R	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	e	a	1	e	1	1	e	e	1	e	a	1	e	e	e	a	1	e	e	e	e	1	e	a	a	a
33R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	e	1	1
34R	1	b	1	b	1	b	b	1	b	b	1	b	1	b	1	b	1	1	b	1	1	b	b	1	1	1	b	b	1	b	b	1	a	a	1	a	1	1	1	1	1	a	a	b	1
35R	1	1	1	1	1	1	a	1	1	1	1	1	b	1	b	1	1	b	1	1	1	1	1	b	1	1	b	1	b	b	1	1	1	1	a	b	1	1	1	b	1	1	a	1	a
36R	1	b	b	1	1	1	1	b	b	1	1	b	b	b	b	1	1	1	b	b	b	1	b	a	a	b	1	b	b	1	a	1	a	1	b	a	a	1	a	1	b	a	1	b	b
37R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	e	1	e	1	1	1	e	1	b	1	1	b	b	1	1	b	1	e	e
38R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	e	1	1
39R	1	e	e	e	1	1	e	e	e	1	e	1	1	1	e	b	1	b	b	b	b	1	1	b	b	e	b	b	b	b	b	e	e	b	e	e	b	e	b	1	e	e	b	1	b
40R	1	b	1	1	a	1	1	1	a	1	1	1	1	1	a	b	1	1	1	1	1	1	a	1	b	1	1	a	a	1	1	a	b	1	1	1	1	1	a	a	1	a	b	1	1
41R	1	1	b	1	e	a	1	a	b	b	a	a	a	b	1	b	1	b	1	b	b	a	a	1	1	b	1	b	1	1	a	b	a	a	a	a	b	a	0	1	b	b	a	a	b
42R	1	1	1	1	1	1	1	1	1	1	b	c	1	1	1	c	1	a	c	c	b	b	c	1	1	1	c	1	c	1	1	c		b	c	1	c	1	c	c	1	1	c	c	c
43R	1	1	1	1	1	1	1	c	1	c	a	1	1	1	a	1	1	c	1	1	1	1	c	1	1	1	1	1	1	1	a	1	1	1	1	c	1	1	1	1	1	1	a	1	1
44R	1	e	1	1	1	e	1	1	e	1	e	a	e	1	1	e	1	e	e	e	e	e	1	e	e	1	a	1	e	1	1	1	a	a	a	1	e	e	1	a	e	a	e	e	a
45R	1	a	1	a	e	a	1	a	1	e	1	1	1	a	1	e	a	e	a	1	1	1	1	1	1	1	e	1	a	1	1	1	a	a	1	1	a	a	a	1	1	e	a	1	e
46R	1	a	1	a	a	1	1	a	a	a	1	1	1	1	1	1	1	1	b	1	1	1	1	a	1	b	b	a	a	a	1	a	1	a	a	a	1	1	b	1	b	a	a	a
47R	0	b	1	1	1	1	1	a	a	1	1	1	1	a	1	1	1	b	1	1	a	a	1	b	a	1	a	a	1	a	a	a	b	b	1	a	a	b	0	1	b	b	e	b	b
48R	0	1	1	1	1	1	1	1	e	1	e	1	e	1	e	1	1	1	a	1	1	1	1	e	1	1	e	1	e	1	1	1	1	1	a	e	1	a	1	a	e	a	1	1	1
49R	1	1	1	e	1	1	1	1	1	1	1	1	1	1	1	1	1	a	a	1	1	e	1	1	e	1	e	a	1	1	e	1	e	a	a	1	e	a	1	a	1	e	e	a	a
50R	1	1	1	1	1	a	a	1	1	b	1	a	a	1	a	1	1	b	a	a	a	a	b	1	b	a	b	1	1	b	b	a	a	a	b	a	a	1	1	a	1	a	b	b	1
51R	1	1	1	1	1	1	e	1	1	1	1	1	a	1	a	1	a	1	1	1	e	1	1	e	a	e	a	e	a	e	1	e	e	e	e	a	a	e	e	e	e	e	a	1	1
52R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	b	1	1	e
53R	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	a	1	1	b	a	b	1	1	b	b	1	1	a	b	1	1	1	1	a	1	1	1	1	b	1
54R	1	1	e	e	1	1	1	1	e	1	1	e	1	1	e	1	e	e	1	1	1	e	1	1	a	1	1	1	1	1	1	e	e	e	1	e	e	e	e	1	a	1	e	e	e
55R	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	b	b	1	a	1	a	1	1	1	b	1	1	b
56R	1	1	1	b	b	1	1	b	1	b	b	b	1	1	1	1	1	1	1	b	1	a	1	a	a	1	1	1	1	1	1	1	1	1	a	1	b	a	0	1	b	b	a	a	a
57R	1	1	1	a	a	b	1	1	a	1	b	1	1	1	1	a	1	b	a	b	a	1	1	1	1	1	a	1	a	1	a	b	a	a	a	b	b	a	0	b	a	1	b	b	1
58R	1	e	1	1	1	e	1	1	e	1	e	1	1	1	1	1	1	e	1	1	e	1	e	e	1	1	b	1	e	1	1	e	e	e	e	b	1	b	0	e	e	b	e	e	e
59R	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	b	1	1	b	1	1	1	1	1	e	1	1	b	1	1	1	1	1	1	1	0	1	b	1	1	1	1
60R	1	1	1	1	a	e	1	a	1	a	a	a	e	a	1	1	e	e	e	1	1	1	a	a	1	e	1	1	a	a	a	a	1	a	a	a	a	1	0	a	1	e	1	a	a
61R	0	1	1	1	1	a	a	e	a	1	1	1	1	1	e	1	1	1	a	e	a	e	e	1	e	1	e	1	e	e	e	a	e	e	e	e	a	a	0	e	e	e	e	e	e
62R	1	1	1	1	a	a	b	1	1	1	1	1	a	1	1	a	a	1	1	1	1	1	1	b	1	1	1	a	1	a	1	1	b	b	1	a	1	a	1	1	0	1	b	a	1	a
63R	1	1	1	1	1	1	1	a	b	1	b	a	b	1	1	1	1	a	a	b	b	b	a	b	a	1	a	a	1	b	a	a	b	b	a	1	1	1	0	a	a	a	b	a	a
64R	1	e	1	e	e	1	1	e	e	1	e	a	e	e	a	a	e	a	e	e	e	a	e	a	e	1	a	e	e	a	a	e	e	a	1	e	a	1	0	e	e	1	a	e	1
65R	1	1	1	1	1	1	1	1	1	a	1	1	1	1	a	a	1	b	b	a	a	a	a	b	b	1	1	a	b	1	a	1	a	a	a	a	a	a	0	a	1	a	b	a	a
66R	1	b	c	b	b	b	c	1	c	c	c	1	c	c	1	1	b	b	1	b	b	b	c	b	b	1	b	c	b	c	c	c	b	b	c	b	b	c	c	0	c	1	1	1	c	c
67R	0	1	1	1	1	a	1	c	1	1	1	1	1	a	1	1	a	1	1	c	1	c	c	c	1	1	1	a	c	1	1	c	1	1	c	c	c	1	0	1	1	c	c	c	1
68R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	1	a	a	a	1	1	a	1	a	1	a	1	a	b	1	1	1	a	1	a	0	1	b	1	1	b	a

id	091	092	093	094	095	096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130
01R	1	c	c	c	c	a	a	1	a	c	1	a	1	1	1	1	1	1	1	1	1	1	1	1	c	a	1	1	1	1	1	1	1	1	1	a	1	c	1	c
02R	c	c	1	c	a	c	1	c	b	b	1	c	1	c	1	1	b	1	c	1	c	c	1	1	1	b	1	c	c	1	1	1	c	1	1	c	1	c	c	1
03R	1	1	c	1	a	a	c	a	1	1	a	1	c	1	1	c	c	c	1	1	1	1	c	c	c	c	1	c	c	1	c	c	a	a	c	a	1	c	c	c
04R	1	b	1	b	b	b	c	1	1	c	c	1	1	c	c	c	1	1	c	1	1	c	1	1	c	b	c	b	b	c	c	1	c	b	1	b	c	c	a	1
05R	1	1	1	b	1	a	a	b	1	a	b	1	1	b	b	b	1	b	1	1	b	1	1	b	1	1	1	1	1	1	1	1	b	1	b	1	1	1	1	1
06R	1	b	c	1	1	b	b	b	1	1	b	b	b	b	1	1	1	1	b	1	b	b	1	c	b	b	b	b	b	b	b	b	1	1	1	1	b	b	b	b
07R	b	b	c	c	c	c	c	b	c	c	c	c	c	c	1	c	1	c	c	1	b	c	c	1	c	c	1	b	c	c	1	1	c	c	1	1	b	c	c	c
08R	1	1	a	1	1	c	a	1	1	1	b	1	1	1	1	1	1	1	a	1	1	b	1	1	1	1	1	1	a	1	b	1	1	1	a	1	1	a	b	1
09R	c	a	1	1	1	c	1	c	c	c	c	c	1	1	1	1	1	1	1	1	1	a	1	1	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10R	b	b	1	a	a	1	a	a	1	a	b	a	1	a	a	1	1	a	b	a	1	1	b	1	b	b	a	a	a	a	1	a	1	1	1	a	1	b	1	b
11R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12R	1	c	a	c	c	c	1	1	c	1	1	1	1	c	c	1	1	1	c	1	1	1	1	1	c	c	1	1	a	a	1	1	1	1	1	1	c	1	1	1
13R	c	1	b	b	c	b	1	c	b	c	b	b	c	b	1	b	c	b	c	1	b	1	c	c	b	1	b	1	1	b	1	c	c	b	c	c	c	1	1	c
14R	1	1	a	1	a	1	a	1	b	1	1	a	1	1	b	1	1	1	1	a	1	1	a	a	1	1	1	a	1	a	1	a	1	a	1	1	b	b	1	1
15R	1	1	1	b	1	1	b	b	1	b	1	1	c	b	1	1	c	b	1	c	c	1	1	b	b	1	b	b	1	1	1	1	1	b	b	1	1	1	1	1
16R	b	1	1	a	1	b	1	b	b	b	a	b	1	b	1	1	1	a	b	1	a	1	1	1	b	a	a	1	1	b	1	1	1	1	1	a	b	a	1	b
17R	1	1	1	c	1	1	1	1	1	c	1	a	c	c	1	c	a	c	c	1	c	c	c	c	1	1	c	c	1	1	1	1	c	1	c	c	1	1	c	c
18R	1	1	a	b	a	1	b	a	b	1	1	b	1	1	1	b	1	1	b	a	a	1	1	b	a	1	1	b	a	1	a	b	b	1	1	1	1	b	1	1
19R	1	a	1	1	c	a	1	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	a	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20R	1	1	b	1	1	1	1	1	1	1	c	c	1	1	1	1	b	b	b	1	1	1	1	1	1	1	1	b	1	1	b	1	1	1	b	1	1	1	1	1
21R	c	c	a	1	a	1	c	1	1	a	c	c	1	1	1	1	c	c	c	c	a	1	1	1	1	c	c	a	1	1	1	a	1	1	c	1	1	1	1	c
22R	1	1	a	a	a	c	a	a	c	c	c	a	1	a	1	a	1	c	1	1	c	c	1	1	a	1	a	1	a	a	1	a	a	c	1	a	c	1	a	a
23R	c	c	1	c	c	c	c	1	c	1	1	c	1	c	1	1	1	1	1	1	c	c	1	1	a	1	1	1	1	1	1	1	1	a	1	a	1	1	c	c
24R	1	a	1	1	1	1	b	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25R	b	a	b	b	b	a	a	a	a		a	b	1	1	1	1	1	b	1	b	a	1	1	1	1	1	a	1	b	1	1	a	1	1	1	b	1	b	1	b
26R	a	c	1	a	c	1	c	1	a	a	1	c	a	1	a	1	a	1	1	1	a	c	1	1	a	1	a	1	1	1	a	a	1	a	1	a	1	1	1	1
27R	a	a	a	b	b	a	a	a	1	1	b	b	b	1	1	1	1	b	1	1	a	1	1	1	1	a	1	1	1	1	b	b	a	b	1	a	1	1	b	1
28R	1	1	1	1	a	1	1	1	1	1	1	1	1	c	1	1	1	1	1	1	1	1	1	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29R	c	c	1	c	a	c	c	c	c	c	c	c	1	1	1	1	1	1	c	1	1	1	1	a	c	c	a	1	1	a	1	c	1	a	c	c	c	1	c	1
30R	1	1	1	a	1	a	a	a	a	1	c	1	1	1	1	1	1	1	a	1	1	a	1	1	a	1	1	1	a	a	c	a	a	1	1	1	c	1	1	1
31R	1	c	1	1	a	b	1	a	1	a	b	1	1	1	a	1	a	a	1	1	a	1	a	1	1	a	1	a	a	1	1	1	1	1	1	1	1	1	a	a
32R	c	a	1	a	a	c	c	c	1	1	c	c	1	1	1	1	1	1	c	c	1	1	1	c	c	1	c	1	a	c	a	1	1	1	1	1	a	c	1	c
33R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
34R	b	a	a	1	1	a	a	a	1	a	a	1	b	b	1	1	1	b	1	b	b	b	1	b	a	1	b	1	1	1	1	b	b	1	1	b	1	a	b	1
35R	b	b	1	1	b	1	1	b	b	1	1	b	1	b	1	1	1	b	1	b	1	b	b	1	1	1	1	a	b	1	1	1	b	1	1	b	b	1	1	b
36R	b	b	a	1	a	1	1	1	b	b	a	1	b	1	1	1	b	b	1	b	b	b	b	1	1	a	a	b	a	1	1	b	1	b	1	b	b	b	a	b
37R	b	c	c	b	c	c	b	1	c	1	1	b	1	1	1	b	1	1	1	1	b	1	1	1	b	b	1	1	1	1	1	1	1	1	1	1	1	c	1	1
38R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
39R	c	1	b	1	b	b	c	1	b	b	b	b	1	c	1	1	1	1	1	1	b	c	1	1	b	b	1	1	1	c	b	1	1	b	c	b	c	c	1	1
40R	1	1	b	b	1	1	b	1	1	1	1	a	1	1	1	1	1	1	1	1	1	a	1	a	1	1	1	1	a	a	1	a	a	1	1	1	1	1	1	1
41R	b	a	b	a	a	a	1	1	a	b	a	1	b	a	b	b	1	1	b	b	b	1	1	a	a	1	1	b	1	a	b	b	b	b	b	b	b	b	1	b
42R	1	c	c	c	b	c	c	b	1	b	c	b	1	c	1	1	1	1	b	c	1	c	1	1	b	1	b	1	1	1	1	c	1	c	b	1	1	c	1	1
43R	c	a	a	a	a	c	a	1	1	a	1	a	1	1	1	1	1	c	a	1	1	c	c	1	1	c	a	a	a	1	1	c	1	1	a	1	1	a	c	1
44R	c	1	1	a	c	c	1	c	c	c	c	1	1	1	1	1	1	a	1	c	1	a	1	c	c	1	1	1	1	1	1	1	1	1	1	c	1	1	1	1
45R	1	1	a	c	1	a	a	1	a	c	1	1	1	c	a	1	a	c	a	a	c	1	a	c	a	c	1	a	1	1	a	c	a	1	a	1	a	a	a	a
46R	a	a	1	b	a	1	a	b	1	a	1	b	a	b	1	1	a	a	1	a	a	a	1	1	b	a	a	b	a	a	1	b	1	1	1	1	1	1	a	a
47R	b	1	a	a	1	b	b	b	a	b	a	a	1	1	b	1	a	a	b	1	a	b	a	1	1	1	1	b	a	b	b	1	1	1	a	a	a	a	a	b
48R	1	c	1	c	a	c	1	a	1	c	1	c	1	1	1	c	1	1	1	c	c	c	1	1	c	1	c	1	c	1	1	1	1	c	1	1	1	1	1	1
49R	a	1	a	a	1	c	a	1	a	c	a	c	1	c	1	1	1	c	a	c	1	1	1	1	a	1	c	1	a	1	1	1	1	1	1	1	1	a	a	1
50R	b	1	1	b	b	a	b	b	a	a	a	a	a	1	1	b	a	b	1	b	a	1	1	a	1	a	a	a	a	b	a	1	a	a	1	1	a	1	b	1
51R	c	c	c	1	a	1	c	a	c	1	a	c	1	c	1	1	1	c	c	c	c	a	1	c	a	c	1	c	1	c	1	c	c	1	1	1	c	c	c	1
52R	1	1	1	1	c	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
53R	b	a	1	1	b	1	1	a	1	1	1	1	1	a	1	1	a	a	1	a	a	1	1	1	1	a	1	1	a	b	1	a	a	b	1	1	1	1	1	1
54R	c	1	1	c	1	c	c	c	c	1	1	1	1	c	c	1	1	1	c	c	1	1	1	1	1	1	1	1	1	c	1	1	1	1	c	1	1	1	1	1
55R	1	1	b	b	1	1	a	1	1	1	b	1	1	a	1	1	1	1	1	1	1	1	1	1	1	b	1	1	1	1	1	1	a	1	1	1	b	1	1	1
56R	1	b	b	1	b	1	a	1	a	b	a	b	1	1	b	b	1	1	b	1	1	b	b	1	b	b	1	b	1	1	b	b	b	b	1	b	1	a	1	1
57R	a	b	a	b	a	a	b	a	a	1	b	b	1	1	1	a	1	1	b	1	b	1	1	a	b	1	a	1	b	1	1	1	b	b	1	1	1	b	a	1
58R	b	1	c	b	1	0	c	1	c	1	c	1	1	c	1	1	1	b	1	b	1	1	1	1	b	1	1	1	c	c	b	c	c	1	1	1	1	c	1	1
59R	c	1	b	1	c	1	1	1	b	1	1	c	1	1	1	1	b	1	1	1	1	1	1	1	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
60R	a	a	a	a	a	a	1	1	a	a	c	1	c	1	c	c	c	1	1	c	a	1	a	c	1	c	1	1	c	a	1	a	1	1	a	a	c	a	a	a
61R	1	1	1	1	c	c	c	c	c	c	c	a	1	1	1	c	1	1	1	a	c	c	1	c	c	a	1	1	1	c	c	c	a	1	a	1	1	c	1	c
62R	1	b	b	a	b	a	a	a	a	b	1	1	1	a	1	1	1	1	a	1	a	a	1	a	a	1	a	1	1	b	1	a	1	a	a	a	1	a	1	1
63R	b	1	a	b	a	b	a	1	a	b	1	1	1	1	a	a	b	1	b	1	b	1	a	1	1	a	1	b	b	b	b	a	a	b	1	1	b	b	a	1
64R	a	a	a	a	1	a	c	c	1	c	a	1	1	c	c	1	1	c	a	1	1	1	c	1	a	c	c	c	c	c	1	a	1	c	c	c	c	a	1	c
65R	b	b	b	a	1	b	a	a	1	a	1	a	1	b	b	1	1	b	b	1	a	1	1	1	a	b	1	1	a	b	1	1	1	1	1	a	1	b	1	a
66R	c	1	b	b	1	c	1	b	1	c	c	b	1	c	c	1	c	c	c	1	c	1	1	c	c	b	c	1	b	1	c	b	b	1	c	b	b	b	1	b
67R	a	c	c	c	c	1	a	1	c	c	1	a	1	1	a	c	a	c	1	1	a	c	1	1	a	1	1	1	c	c	1	c	1	c	1	1	1	1	a	1
68R	b	1	1	b	a	b	b	a	b	b	1	a	1	1	a	1	1	a	1	1	1	1	1	1	a	b	1	1	1	1	1	1	1	1	1	a	a	b	1	1

Appendix L. Results of productive collocation test

	blank	correct	error	alternations (collocation)	alternations (other expressions)	L1 transfer	preposition	adjective	articles	Nverror
01-p	34	43	48	2	0	3	0	0	0	30
02-p	62	46	22	0	0	0	0	0	0	6
03-p	35	7	44	0	1	32	11	0	0	22
04-p	41	32	52	5	0	0	0	0	0	27
05-p	51	14	65	0	0	0	0	0	0	1
06-p	62	24	43	1	0	0	0	3	0	1
07-p	14	18	96	0	2	0	0	1	0	0
08-p	29	27	54	20	0	0	0	0	0	0
09-p	35	46	35	0	2	0	6	0	6	12
10-p	74	35	5	0	3	13	0	0	0	0
11-p	3	127	0	0	0	0	0	0	0	0
12-p	49	21	34	0	1	0	25	0	0	20
13-p	91	0	18	1	0	0	12	0	8	0
14-p	60	59	2	9	0	0	0	4	0	0
15-p	36	19	62	0	1	12	0	0	0	40
16-p	44	20	38	0	1	17	0	0	10	15
17-p	83	5	13	5	0	24	0	0	0	0
18-p	83	2	39	0	0	0	0	0	6	13
19-p	33	42	41	10	0	0	4	0	0	8
20-p	32	62	23	2	0	0	11	0	0	0
21-p	82	1	42	0	3	0	0	2	2	1
22-p	37	13	13	0	3	64	0	0	0	0
23-p	75	14	18	5	5	0	13	17	0	5
24-p	62	39	25	1	2	0	1	0	0	0
25-p	68	30	19	12	0	0	1	0	0	0
26-p	41	63	20	6	0	0	0	0	0	3
27-p	52	25	33	20	0	0	0	44	0	11
28-p	11	111	1	0	5	1	1	21	0	0
29-p	54	32	42	1	1	0	0	25	0	11
30-p	53	16	36	0	0	0	25	0	0	10
31-p	62	8	47	13	0	0	0	0	0	1
32-p	49	18	48	0	0	0	15	0	0	8
33-p	14	110	3	0	0	0	3	0	0	0
34-p	66	13	49	0	2	0	0	11	0	14
35-p	35	25	8	60	0	0	2	5	0	0
36-p	78	0	36	0	0	0	16	0	0	12
37-p	28	69	17	15	0	0	1	0	0	0
38-p	2	121	4	3	0	0	0	0	0	0
39-p	45	51	34	0	0	0	0	17	0	2
40-p	12	109	6	0	0	0	3	0	0	1
41-p	64	0	50	1	0	15	0	0	0	2
42-p	44	72	11	0	0	0	3	0	0	3
43-p	41	2	1	32	0	0	54	33	0	60
44-p	57	22	39	11	1	0	0	0	0	1
45-p	62	0	9	59	0	0	0	0	0	0
46-p	59	8	59	0	4	0	0	7	0	43
47-p	38	75	8	2	0	0	7	1	0	1
48-p	37	4	11	66	0	0	12	0	0	5
49-p	31	45	11	0	0	0	38	0	5	6
50-p	76	0	54	0	0	0	0	0	0	36
51-p	75	7	41	0	0	0	7	0	0	26
52-p	5	122	2	0	1	0	0	0	0	0
53-p	26	28	31	35	0	6	4	0	0	6
54-p	24	80	17	3	0	0	6	0	0	0
55-p	65	13	48	4	0	0	0	0	0	17
56-p	19	86	23	0	1	0	1	0	0	1
57-p	43	21	38	0	0	5	22	0	1	1
58-p	38	35	17	12	28	0	0	0	0	0
59-p	28	91	11	0	0	0	0	60	0	0
60-p	39	9	79	3	0	0	0	0	0	14
61-p	53	24	51	2	0	0	0	3	0	21
62-p	74	6	45	0	0	5	0	0	0	0
63-p	46	37	47	0	0	0	0	0	0	0
64-p	95	0	34	0	1	0	0	0	0	1
65-p	60	33	31	6	0	0	0	5	0	11
66-p	92	3	35	0	0	0	0	0	0	1
67-p	56	10	57	0	7	0	0	0	0	33
68-p	42	47	31	0	1	0	9	46	0	10