

## **A Study on Separating Forms of Separable Words in Modern Chinese**

Jiaojiao Zang<sup>1</sup> and Endong Xun<sup>2</sup>

<sup>1</sup>Institute of Big Data and Language Education  
No.15, Xueyuan Road, Haidian District  
Beijing, China  
qiaolidiefei528@163.com

<sup>2</sup>Institute of Big Data and Language Education  
Beijing Language and Culture University  
No.15, Xueyuan Road, Haidian District  
Beijing, China  
edxun@126.com

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*ABSTRACT. Data statistics and quantitative analysis are conducted on separable words based on a large-scale corpus. Given a statistical study on 85 separable words, this study discovers that combined forms of separable words are more frequently used in practical language materials. The paper discusses specific forms comprehensively in terms of corpus tagging and analyzes the characteristics of separating forms. Results can serve as references for studies on separable words and foreign language teaching.*

**Keywords:** separable words, separating forms, separating frequency

1. **Introduction.** Many academics have focused on studying separable words in the Chinese academic circle. Zhiwei Lu first proposed the notion of separable words in *Chinese Word Formation*<sup>1</sup> in 1957, and his actions caused widespread concern in academic circles. Since then, scholars have been widely studying separable words from different angles.

1.1. **Nature of Separable Word.** Linguists have different opinions on the nature of separable words. Yuanren Chao (1968)<sup>2</sup>, Qinghua Li (1983)<sup>3</sup>, and Jinming Zhao (1984)<sup>4</sup> regarded a separable word as one word. Other scholars, such as Li Wang (1946)<sup>5</sup>, Shuxiang

Lv (1979)<sup>6</sup>, Huan Wang (1995)<sup>7</sup>, and Youwei Shi (1983)<sup>8</sup>, deemed that a separable word should be one phrase. Additionally, Dexi Zhu (1982)<sup>9</sup> analyzed the nature of separable words from the perspective of morpheme and concluded that it was a phrase if words were separated, whereas a separable word if combined.

**1.2. Type of Separable Words.** Academics have yet to reach a consensus on the type of separable words. Separable words mainly contain verb-object, verb-complement, combinative, subject-verb, and modifier-noun types. This study focuses on the verb-object separable words.

**1.3. Separable Forms of Separable Words.** Yuanren Chao (1968) proposed the following forms: verb with a suffix or complement, object with a modifier, and reverse verb and object<sup>2</sup>. Qinghua Li (1983) viewed the verb-object separable words comprised three extended ways: “了 [le]” “着 [zhe]”, and “过 [guo]”; a quantifier; and other extended forms, such as “什么 (what)”, “点儿 (a bit)”, and “谁的 (whose)”<sup>3</sup>. Yehui Duan (1994) summarized six kinds of extended forms: inserting a verb tense, verb trend, quantitative phrase, pronoun, complex components, and symmetrically inserted<sup>10</sup>. Haibo Ren and Gang Wang (2005) elaborated 11 separating forms based on a 13,000-word corpus, such as V+了/着/过 [le/zhe/guo] + O, V+ complement + O, and V + noun/pronoun + O<sup>11</sup>.

Haifeng Wang (2008) provided a comprehensive summary of 13 separating forms: A + 了 [le] + other components + B, A + noun/pronoun + B, A + complement + B, A + quantifier + B, A + 过 [guo] + other components + B, A + 着 [zhe] + other components + B, A + numeral + B, A + adjective + B, A + 个 [ge] (a) + B, A + 的 [de] (of) + B, A + verb + B, object preposing, and overlap<sup>12</sup>. Chunling Li (2008) proposed the concept of a “separable groove”. The author analyzed the combined, embedded, omitted, and translocated forms of separable words, while investigating the “separable groove”. The embedded form is divided into single component embedded and multiple components embedded. Grooves of single component have two forms: A + 时态 (tense) (了, 着, 过 [le, zhe, and guo, respectively]) + B and A + 非时态 (non-tense) + B. Grooves of multiple components have the following forms: A + tense + tense + B, A + tense + non-tense + B, A + non-tense + tense + B, and A + non-tense + non-tense + B<sup>13</sup>.

Scholars have conducted numerous comprehensive studies on separable words, which can be summed up as follows: the nature of separable words, type of separable words, and separating forms of separable words. Most of the studies focus on the classification and characteristics of separable words. However, the results have not been comprehensive. These scholars analyzed typical cases quantitatively but lacked data analysis based on a large-scale corpus to support the view. For example, Haibo Ren and Gang Wang preliminarily explored a 13,000-word corpus in 2005. Haifeng Wang performed statistical analysis with the help of the CCL corpus in 2008.

The present study performs a comprehensive examination of separable words through a large-scale balance corpus, that is, the Beijing Language and Culture University (BLCU) Chinese corpus. Separating frequency is calculated, separating forms are examined in detail, and the proportion of separating forms in a real corpus is summarized to serve as references for studies on separable words and foreign language teaching.

**2. Beijing Language and Culture University Chinese Corpus.** The BLCU Chinese corpus is a full-text retrieval system with multiple domains and genres. The system was developed by the Institute of Big Data and Educational Technology in Beijing Language and Culture University. BCC contains multi-domain corpus, such as comprehensive parts, literary works and ancient Chinese literature, covering about 15 billion words. BCC conducts automatic segmentation and part-of-speech (POS) tagging on corpus, except for the ancient Chinese part. BCC can also support word strings and POS combined queries, conduct statistical analysis, and view original queries from query results. Results can also be selected and downloaded based on the inquiry.

Generalization, fuzzy, and multiple modal searches can be performed in BCC. For example, generalization is achieved by using “\*”, thus retrieving discontinuous phrases or separable words. “.” can be used to determine the number of generalization words. With the generalized operation of characters, long distance language model search is also available in the BCC system. Particularly, we can search a complete sentence according to the combination of sentence patterns and POS. This capability is very beneficial to the study of Chinese syntax. Empirical study for grammatical phenomena and abstract generalization is also provided.

### **3. Analysis of Separable Forms of Separable Words Based on Corpus.**

#### **3.1. Study Scope and Corpus Source.**

**3.1.1. Study Object of Separable Words.** The separable words studied in this paper are obtained mainly from the *Modern Chinese Dictionary* (fifth edition) and New HSK 5,000. The *Modern Chinese Dictionary* formally marks separable words. A phonetic notation “//” is inserted in the middle, indicating that a word can be inserted other components, such as “洗//澡 [xi //zao] (take a bath)”. The study draws 3,487 separable words by using the mark “//”.

This study merges the intersection between HSK 5,000 and 3,487 separable words from *Modern Chinese Dictionary*, consequently obtaining a total of 185 separable words. A comprehensive analysis of the 185 separable words is then conducted. Firstly, verb-complement separable words are deleted, such as “提高 (improve), 看见 (see), and 起来 (stand up)”. Secondly, ambiguous separable words are also deleted. For example, “点心 (dessert)” means “eat” in *Modern Chinese Dictionary*, but this term represents “dessert” in HSK 5,000. Other examples also exist, such as “运气 (fortunes), 制服 (uniform), and 结果 (result)”. Lastly, separable words with formal markers but rarely used in real life are

deleted, such as “突出 (extrude), 算数 (keep one’s word), and 值得 (deserve)”. Finally, this study determines 85 separable words as the study object (Appendix 1).

3.1.2. **Data Sources.** The corpus in this study is based mainly on the comprehensive portion of BCC, which is a balanced corpus that covers different fields, such as newspapers, literary works, and micro-blogs. Valid sentences are extracted, separating forms are searched, and statistical results are analyzed.

3.1.3. **Study Scope.** Among the former studies, few touched on data analysis of separable words. Therefore, this paper will analyze the use of separating forms of 85 separable words based on a large-scale corpus, focusing mainly on grammatical forms. Then the study will have a deep study on separating forms of 85 separable words.

### 3.2. Separating Forms of Verb-Object Separable Words.

3.2.1. **Separating Frequency Analysis.** This study extracts sentences of 85 separable words from BCC. Valid sentences are obtained after eliminating ambiguities. Then the separating frequency is counted to reflect the separating situation.

Separating frequency refers to the proportion of the number of separating sentences to that of all sentences. For instance, the word “洗澡 (take a bath)” has 8,808 sentences, and contains 5,612 sentences of combined form and 3,196 sentences of separated form; thus, the separating frequency of “take a bath” is “ $3,196/8,808 = 0.367$ ”. A huge difference can be observed in 85 separable words. Table 1 shows the distribution of the separating frequencies of 85 separable words.

TABLE 1. SEPARATING FREQUENCY DISTRIBUTION

Separating Frequency	$\geq 0.5$	0.5-0.4	0.4-0.3	0.3-0.2	0.2-0.1	$\leq 0.1$
Number(85)	3	6	6	11	15	43
Proportion	3.5%	7.05%	7.05%	12.9%	17.7%	51.8%

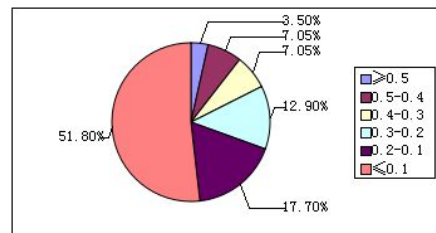


FIGURE 1. SEPARATING FREQUENCY DISTRIBUTION

Table 1 and Figure 1 show that the average separating frequency of the 85 separable words has a relatively low proportion of 0.154. Only the separating frequencies of three words exceed 50%: the proportion of 沾光 (gain some advantage from another) is 69%, that of 听话 (obey sb.) is 52%, and that of 握手 (shake hands) is 51%. The separating

frequency of the separable words (51.8%) is lower than 0.1, and 69.5% is lower than 0.2. Separable words with high separating frequency are in the minority. Therefore, in actual language use, the combined forms of most separable words are more common than the separated forms.

**3.2.2. Data Statistics of Separating Forms.** This study explores the separating forms of 85 separable words and obtains the separating forms of every separable word in BCC. First, two separable words with high separating frequency and low ambiguity are selected: 洗澡 (take a bath) and 睡觉 (go to sleep). Subsequently, 3,119 sentences of “take a bath” and 5,751 sentences of “go to sleep” are obtained by searching for a model in BCC: “洗\*澡 [xi \* zao] (take \* bath)” and “睡\*觉 [shui \* jiao] (go to \* sleep)”, with exclusive preposing and overlapping results. Then this study analyzes 8,870 sentences and removes ambiguities, such as “洗浴中心泡澡 (take a bath in the bath center)” and “睡醒之后觉得很累 (wake up feeling very tired)”. Finally, 3,096 valid sentences of “take a bath” and 5,634 valid sentences of “go to sleep” are obtained.

This study analyzes valid sentences individually and summarizes separating forms in actual language use (Table 2).

TABLE 2. 25 SEPARATING FORMS OF SEPARABLE WORDS

Sequence	Separating Forms	Example Sentences
1	A + 了[le] + B	我昨晚八点就睡了觉。(I had a sleep at 8 o'clock last night.)
2	A + 了[le] + * + B	妈妈在房间里洗了热水澡。(My mother took a hot bath in the room.)
3	A + 过[guo] + B	有的学生从来没吃过苦。(Some students never bear hardships in their life.)
4	A + 过[guo] + * + B	我刚洗过一个冷水澡。(I just took a cold bath.)
5	A + 过[guo] + 了[le] + B	所有学院都已经报过了名。(All institutes have signed up.)
6	A + 着[zhe] + B	她们正欢快地跳着舞。(They are happily dancing.)
7	A + 着[zhe] + * + B	我们最好不要当着他的面这么做。(We had better not do it in his face.)
8	A + complement + B	姐姐结完婚后将要去度蜜月。(My sister will go on a honeymoon after she gets married.)

9	A + complement + * + B	恐怕谁也帮不了你的忙。(I am afraid nobody can give a hand to you.)
10	A +的[de] + B	谁给你理的发啊?(Who has a haircut for you?)
11	A +的[de] + * + B	我昨晚发的高烧。(I had a high fever last night.)
12	A +个[ge] + B	我下周去北京出个差。(I will go on a business to Beijing next week.)
13	A +个[ge] + * + B	好想给自己放个长假。(I want to have a long holiday.)
14	A + quantifier + B	我想请一次假。(I want to ask for leave.)
15	A + quantifier+ * + B	她很想跟人吵一场激烈的架。(She wants to have a fierce quarrel with others.)
16	A + numeral + B	医生必须给他打一针。(The doctor must give him an injection.)
17	A + numeral + * + B	他不由得吃一大惊。(He can't help having a big surprise.)
18	A + classifier + B	我决定去冒次险。(I decide to take a risk.)
19	A + classifier + * + B	为了晚饭，他们宁愿排次长长的队。(They would rather be in a long row for the dinner.)
20	A + noun/adjective/verb + B	他乐意帮朋友的忙。(He is pleased to give a hand to his friends.)
21	A + personal pronoun + B	你嫌我丢你的人了?(Do you complain that I lose your face?)
22	A+ demonstrative pronoun + B	我上班时就化这样的妆。(I make up like this when I am at work.)
23	A + interrogative pronoun + B	你们离什么婚!(You can't obtain a divorce!)
24	overlap	我们去给玛丽拜拜年。(We go to pay a New Year call to Mary.)
25	object preposing	家人连他的面都见不着。(His family may never meet him.)

- Note: (1) The example sentences are from BCC;  
 (2) “\*” shows that the word can be inserted other ingredients.

Twenty-five separating forms that contain a single component and multiple components are summarized. For example, “A + le + B” and “A + le + \* + B” are divided into “le” individually embedded and “le” with other components embedded, respectively. The following are treated similarly. Complements can be divided into different kinds, such as resultant, potential, and directional complements. Due to the complexity of complements and inserted components, the paper does not perform a detailed classification of complements. Additionally, noun, adjective, verb, and personal pronouns can also be inserted other components. The overlapping forms can be generally divided into the following: AAB, ABB, A 一 [yi] AB, A 不 [bu] AB, A 了 [le] AB, and A 没 [mei] AB.

**3.2.3. Species of Separating Forms.** Forms are grammaticalized and converted into specific query modes based on the aforementioned 25 separating forms. For example, “帮+量词+忙 [bang classifier mang]” is converted to “帮 q 忙 [bang q mang]” (q means classifier in BCC). This paper searches the separating forms of 85 separable words via query modes. In conclusion, separating forms have different distributions and separating forms of every separable word have various proportions (Table 3).

TABLE 3. SPECIES OF SEPARATING FORMS

Type Species	>20	16-20	11-15	6-10	≤5
the Number of Separable Words	8	22	27	16	12
Proportion	9.4%	25.9%	31.8%	18.8%	14.1%

Statistics show that separable words with more than 20 separating forms have a low proportion and only account for 8.4% of 85 separable words, as in the following eight words: “洗澡 (take a bath) (24 separating forms), 睡觉 (go to sleep) (24 separating forms), 吃亏 (obtain the short end of the stick) (23 separating forms), 生气 (get angry) (23 separating forms), 跳舞 (dance) (23 separating forms), 吃苦 (bear hardships) (23 separating forms), 冒险 (take risks) (22 separating forms), and 帮忙 (give a hand) (22 separating forms)”. Moreover, 12 separable words have five or less separating forms and account for 14.1%, including 灰心 (get discouraged), 旷课 (skip school work), 作弊 (cheat), 就业 (obtain employment), 纳闷 (feel puzzled), and 破产 (go bankrupt). The word “毕业 (graduate)” appears with four separating forms; 动身 (depart), 延期 (put off), and 失业 (lose one's job) have three forms; whereas 配套 (form a complete set) and 变质 (go bad) appear with merely two forms. These words have a small proportion of valid sentences and separating forms. For example, “纳闷 (feel puzzled)” has sixteen valid sentences and five separating forms, including “纳了闷 [na le men] (feel puzzled)” with one sentence, “纳了\*闷 [na le \*men] (feel \* puzzled)” with three sentences, “纳的闷 [na de men] (feel puzzled)” with one sentence, “纳着闷 [na zhe men] (feeling puzzled)”

with four sentences, and “纳起闷 [na qi men] (feel puzzled)” with seven sentences. An example of “延期 [yan qi] (put off)” has seven valid sentences and three separating forms, including “延了期 [yan le qi] (put off)” with three sentences, “延过期 [yan guo qi] (put off)” with two sentences, and “延不了期 [yan bu liao qi] (cannot put off)” with two sentences. Separable words with less than 10 separating forms also account for 32.9%, whereas separating forms between 11 and 20 have a proportion of 57.7%.

Different separating forms have various proportions in separable words. For example, according to the statistics, the auxiliary word “了 [le]” can be inserted into the 85 separable words. The auxiliary word “过 [guo]” can be inserted into 56 separable words, accounting for 65.9% of the separable words, such as “见面 (meet), 帮忙 (give a hand), and 生气 (get angry)”. The auxiliary word “着 [zhe]” can be inserted into 38 separable words, accounting for 44.7%, such as “当面 (face to face), 鞠躬 (make a bow), and 打架 (scuffle)”. A complement can also be inserted into 52 separable words, accounting for 61.2%, such as “跳舞 (dance), 鼓掌 (applause), and 结婚 (get married)”. “个 (a)” can be inserted into 45 separable words, accounting for 52.9%, such as “洗澡 (take a bath), 帮忙 (give a hand), and 睡觉 (go to sleep)”. “的 (of)” can also be inserted into 45 separable words, accounting for 55.2%, such as “起床 (get up), 结婚 (get married), and 排队 (queue up)”. The objects of 45 separable words can be preposed, accounting for 52.9%, such as “化妆 (make up), 理发 (have a haircut), and 冒险 (take risks)”. A quantifier can be inserted into 44 separable words, accounting for 51.7%, such as “叹气 (sigh), 握手 (shake hands), and 吃亏 (obtain the short end of a stick)”. Overlapping forms are very complicated because 52 separable words have different forms. The form of “AAB” has a proportion of 44.7%, containing 38 separable words, such as “跳舞 (dance), 照相 (take photos), and 鞠躬 (make a bow)”. The form of “A不 [bu] AB” has a proportion of 32.9%, containing 28 separable words, such as “结婚 (get married), 冒险 (take risks), and 伤心 (get sad)”. The form of “A一 [yi] AB” has a proportion of 18.8%, containing 16 separable words, such as “散步 (take a walk), 排队 (queue up), and 鞠躬 (make a bow)”. The form of “A了 [le] AB” has a proportion of 12.9%, containing 11 separable words, such as “化妆 (make up), 叹气 (sigh), and 握手 (shake hands)”. The form of “A没 [mei] AB” has a proportion of 5.8%, containing 5 separable words, such as “离婚 (obtain a divorce), 考试 (take an exam), and 怀孕 (become pregnant)”. The form of ABB is a special situation because this form merely contains “洗澡 (take a bath)” and “睡觉 (go to sleep)”, which may be used for a particular style of a specific group.

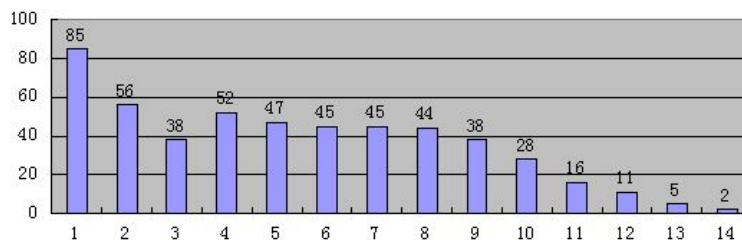


FIGURE 2. DIFFERENT SEPARATING FORMS OF SEPARABLE WORDS



1. 了 [le], 2. 过 [guo], 3. 着 [zhe], 4. 补语 (complement), 5. 的 [de], 6. 个 [ge], 7. 前置 (object preposing), 8. 数量词 (quantifier), 9. AAB, 10. A 不 [bu] AB, 11. A 一 [yi] AB, 12. A 了 [le] AB, 13. A 没 [mei] AB, and 14. ABB

**3.2.4. Analysis of Separating Forms of Separable Words.** Statistics indicate that the separating forms of the separable words are relatively in proportion with the frequency of the separable words. Basically, words with a higher separating frequency have more separating forms, and vice versa. For example, “洗澡 (take a bath)” has a separating frequency of 35% and 22 separating forms, whereas those of “吃亏 (obtain the short end of the stick)” are 40% and 22, respectively. Words with over 20 separating forms and a frequency of over 30% include “帮忙 (give a hand)”, “吃苦 (bear hardships)”, and “见面 (meet).” Words with fewer separating forms have a lower separating frequency, for example, “毕业 (graduate)” with a separating frequency of 2.9% and only four separating forms, and “延期 (put off)” with separating frequency of 0.8% and only three separating forms. All the words with separating frequency of below 5% have less than five separating forms, such as “破产 (go bankrupt)”, “动身 (depart)”, “配套 (form a complete set)”, “失业 (lose one’s job)”, “变质 (go bad)”, and “作弊 (cheat)”. However, a disproportion between separating frequency and forms can be observed in certain separable words, indicating that words with higher frequency may have fewer forms than normal forms. An example of such disparity is “吃惊 (get surprised)”, which has 15 separating forms with a separating frequency of 41%. The reason is that “吃惊 (get surprised)” has 10,354 valid sentences and “吃了一惊 [chi le yi jing] (get a shock)” has 10,147 sentences with a percentage of over 98%, while the other 14 forms account for less than 2%. The word “当面 (face to face)” with a separating frequency of 45% only has eight separating forms, of which over 80% is “当着\*面 [dang zhe \* mian] (face to \* face).” Similar words include “泄气 (feel discouraged)” with “泄了气 [xie le qi] (felt discouraged)” over 84%, and “鞠躬 (bow)” with “鞠了一躬 (make a bow)” over 78%. All these examples indicate an imbalance in the distribution of separating forms of separable words, thus explaining why certain words with higher separating frequency would have fewer than normal separating forms.

Calculation and data analysis are performed on the separating forms of 85 separable words. The results reveal that most of the separable words (64.7%) have less than 15 separating forms, words with over 20 forms in the minority. Different separating forms account for various percentages. Although certain words have unbalanced correspondence of higher separating frequency and fewer forms, the number of separating forms is in accordance with the separating frequency of words.

**3.3. Reasons Behind Separating Forms.** In addition to style, verb morphemes of words with a high separating frequency are also evidently frequently used in real life. For example,

three words contain the verb morpheme “eat” : the separating frequency of “吃惊 (get surprised)” accounts for 40%, that of “吃亏 (obtain the short end of a stick)” accounts for 41%, and that of “吃苦 (bear hardships)” accounts for 42%. Two words contain the verb morpheme “hit” : the separating frequency of “打针 (take an injection)” accounts for 42% and that of “打仗 (fight)” accounts for 29%. Other verbs can also be found, such as “见 (meet)”, “听 (hear)”, “洗 (wash)” and “跳 (jump)”. These verb morphemes are frequently used in actual language and have a strong word-building ability. Hence, when these verb morphemes are combined with noun morphemes, the words acquire higher separating frequency and more separating forms.

**4. Conclusion.** Separable words are important linguistic phenomena in modern Chinese grammar. In this study, separating forms of separable words are studied comprehensively based on a large-scale corpus. Certain results are obtained at the preliminary level, but this study is limited because only 85 important separable words are studied. The future research objective is to study all Chinese separable words. Research on separating forms may also be enhanced further, while the system should be strengthened continuously.

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APPENDIX 1  
85 SEPARABLE WORDS

拜年 (pay a New Year call)	帮忙 (give a hand)	报仇 (take revenge)
保密 (keep secret)	报名 (sign up)	毕业 (graduate)
变质 (go bad)	操心 (take pains)	吵架 (quarrel with sb.)
吃惊 (get surprised)	吃亏 (obtain the short end of the stick)	吃苦 (bear hardships)
出差 (go on a business)	出神 (be spellbound)	辞职 (resign)
打仗 (fight)	打架 (scuffle)	打猎 (go hunting)
打针 (give an injection)	担心 (get worried)	当面 (face to face)
捣乱 (make trouble)	道歉 (apologize)	登记 (enroll)
丢人 (lose face)	动身 (depart)	发烧 (have a fever)
放假 (have a holiday)	放心 (feel relieved)	干杯 (drink a toast)
告状 (complain)	鼓掌 (clap one's hands)	挂号 (register)
拐弯 (turn round)	害怕 (be afraid)	害羞 (be shy)
狠心 (be heartless)	化妆 (make up)	怀孕 (become pregnant)
灰心 (get discouraged)	及格 (pass a exam)	见面 (meet)
结婚 (get married)	敬礼 (salute)	就业 (obtain employment)
鞠躬 (make a bow)	考试 (take a exam)	旷课 (skip school work)
劳驾 (excuse me)	理发 (have a haircut)	离婚 (obtain a divorce)
冒险 (take risks)	纳闷 (feel puzzled)	排队 (queue up)
配套 (form a complete set)	拼命 (risk one's life)	破产 (go bankrupt)
起草 (draft)	起床 (get up)	起哄 (create disturbance)
请假 (ask for leave)	散步 (take a walk)	上当 (get cheated)
伤心 (get sad)	生气 (get angry)	失业 (lose one's job)
睡觉 (go to sleep)	叹气 (sigh)	跳舞 (dance)

听话 (obey sb.)	投资 (invest)	握手 (shake hands)
洗澡 (take a bath)	宣誓 (swear)	泄气 (feel discouraged)
延期 (put off)	要命 (drive sb. to his death)	游泳 (swim)
遭殃 (suffer)	着急 (feel anxious)	照相 (take photos)
沾光 (gain some advantage from another)	争气 (try to make a good showing)	注册 (register) 作弊 (cheat)