

Valency Dictionaries and Chinese Vocabulary Acquisition for Foreign Learners

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Abstract: Valency is a major source of lexical errors in foreign language learning. Accordingly, the research question is how the syntactic and semantic properties of a word can be retrieved from the corpora and represented in a Chinese valency dictionary to facilitate foreign learners' vocabulary acquisition. Within the three aspects of the valency framework — logical-semantic, syntactic and semantic-pragmatic valency — this study examines 60 cases of Chinese lexical misuse extracted from the HSK (Chinese Language Proficiency Test) Dynamic Compositions Corpus. The results suggest that the majority of cases of misuse occur in the dimension of semantic-pragmatic valency and that this semantic-pragmatic misuse can be ascribed to various factors such as semantic collocations, emotive variables, text styles, registers, and other contextual factors. The results are then utilized as syntactic, semantic and pragmatic information to be presented in a Chinese valency dictionary. Specifically, the results obtained from a case study of a misused word by referring to a large-scale native Chinese speaker corpus help retrieve a relatively full list of complementation patterns, based on which the study designs a Chinese valency entry that embodies three basic elements — quantitative valency, qualitative valency and valency patterns.

Keywords: CHINESE VALENCY DICTIONARY, VALENCY ENTRY, LOGICAL-SEMANTIC VALENCY, SYNTACTIC VALENCY, SEMANTIC-PRAGMATIC VALENCY, CHINESE VOCABULARY ACQUISITION, LEXICAL MISUSE, COMPLEMENTATION PATTERNS, LEARNER CORPUS, NATIVE SPEAKER CORPUS

Opsomming: Valensiewoordeboeke en Chinese woordeskatverwerwing vir vreemdetaalleerders. Valensie is 'n groot bron van leksikale foute in die aanleer van 'n vreemde taal. Gevolglik ontstaan die vraag hoe sintaktiese en semantiese eienskappe van 'n woord uit die korpus verkry en in 'n Chinese valensiewoordeboek weergegee kan word om woordeskatverwerwing vir vreemdetaalleerders te vergemaklik. Met inagneming van die drie aspekte van 'n valensieraamwerk — logies-semantiese, sintaktiese en semanties-pragmatiese valensie — word 60 gevalle van Chinese leksikale foute wat uit die HSK (Chinese Taalvaardigheidstoets) Dinamies Saamgestelde Korpus onttrek is, bestudeer. Die resultate dui daarop dat die meeste van die foute

plaasvind in die semanties-pragmatiese valensie-dimensie en dat hierdie semanties-pragmatiese foute toegeskryf kan word aan verskeie faktore soos semantiese kollokasies, emotiewe veranderlikes, teksstyle, registers, en ander kontekstuele faktore. Die resultate word dan benut as sintaktiese, semantiese en pragmatiese inligting wat in 'n Chinese valensiewoordeboek weergegee moet word. Meer spesifiek, die resultate wat verkry word uit 'n gevallestudie van 'n verkeerd gebruikte woord wat onttrek is uit 'n grootskaalse Chinese moedertaalsprekerskorpus, help om 'n relatief volledige lys aanvullingspatrone, wat gebaseer is op die studieontwerpe van 'n Chinese valensie-inskrywing wat drie basiese elemente insluit — kwantitatiewe valensie, kwalitatiewe valensie en valensiepatrone — te verkry.

Sleutelwoorde: CHINESE VALENSIEWOORDEBOEK, VALENSIEINSKRYWING, LOGIES-SEMANTIESE VALENSIE, SINTAKTIESE VALENSIE, SEMANTIES-PRAGMATIESE VALENSIE, CHINESE WOODESKATVERWERWING, LEKSIKALE WANGEBRUIK, AANVULLINGSPATRONE, AANLEERDESKORPUS, MOEDERTAALKORPUS

1. Introduction

A word, as a 'composite unit of form and meaning' (Lyons 2000: 23), has invariably been in the limelight of foreign language teaching and learning. Traditionally, the teaching of Chinese as a foreign language has centered on grammar while neglecting vocabulary to some extent. Sun (2006) argues that vocabulary should assume a fundamental role in Chinese teaching since it is on the basis of vocabulary that grammatical rules can be established. In practical learning, only a handful of lexical problems such as synonyms are posed and addressed in the classroom; whereas, a considerable number of lexical puzzles emerge from learners' daily study due to the specific features of Chinese vocabulary such as flexibility of word order and lack of inflections and derivations (Sun 2006). What follows is a case of misuse of *baifang* (拜访, visit) found in the HSK Dynamic Compositions Corpus (a corpus that collected the writings of non-native Chinese learners who participated in the HSK advanced level writing tests). The correct word is offered in the parentheses:

- (1) 爸 和 妈 我 很 想 你 们, ... 我 一 定 要 拜 访 (探 望) 你 们。
ba he ma wo hen xiang nimen, ... wo yiding yao baifang (tanwang) nimen.
Dad and Mom I very miss you, ... I surely will visit you.
Mom and Dad, I miss you so much. ... I will visit you no matter what happens.

In this example, the examinee intended to express the meaning 'to pay a visit to his or her parents'. However, despite the fact that both *baifang* (拜访) and *tanwang* (探望) are honorific verbs whose PATIENTs are the elder members of one's family, 'parents' are excluded from the list of semes (i.e. semantic features) presupposed by the PATIENT of *baifang*. In this respect, *baifang* and *tanwang* are synonyms and share the same English equivalent 'visit', but require different semantic features for their PATIENTs. Without solid lexical knowledge or proper guidance from teachers and reference books, learners tend to misuse the word.

As the 'silent teacher', learners' dictionaries are expected to provide systematic information of lexical usage. However, compared with the worldwide popularity of English learners' dictionaries, Chinese dictionaries for foreign learners (hereafter CLDs) have received scant attention. According to the investigation conducted by Xie et al. (2015: 4), more than 80% of foreign learners of Chinese 'do not know or barely know' CLDs. Most of them consult Chinese or Chinese–English dictionaries compiled for native speakers of Chinese. This situation may cause problems for foreign learners. Therefore, it is an urgent task to enhance learners' awareness of using CLDs.

Apart from enhancing learners' awareness, the quality and user-friendliness of CLDs need to be considered. Nevertheless, existing CLDs have some weaknesses that might not cater for learners' practical needs. For instance, Zhang (2011) points out that the system of CLDs, especially their definitions, largely follow the fashion of traditional Chinese dictionaries for native speakers; Xie et al. (2015) found that it is rather common that present CLDs lack systematic syntactic and pragmatic information. For example, the following entry of *baifang* in the *Commercial Press Learners' Dictionary of Contemporary Chinese* (Lu and Lv 2007) only shows one syntactic pattern — (NP) + VP + NP, and it lacks the pragmatic information of excluding 'parents' from the object slot of visiting:

拜访 *bàifǎng* (动) 客气话, 带着敬意看望: 拜访师长、亲友 | 我们周末去拜访王老师 | 上星期我们去拜访了一位老作家 | 有时间我一定去拜访您。

拜访 *bàifǎng* (verb) polite words, to visit sb. with respect: to visit teachers, elders or relatives | We will visit teacher Wang at the weekend | We visited a veteran writer last week | I will visit you if I have time.

Another problematic situation is that foreign learners, as noted, are inclined to consult Chinese–English dictionaries and that most monolingual CLDs provide simple English equivalents for the Chinese entry-words. Thus, English, as the international language, may influence the acquisition of Chinese vocabulary to some degree. In Example 1, learners' incomplete lexical knowledge of *baifang* and their association with the English equivalent 'visit' may cause the negative transfer and make a syntactically-correct but semantically-and-pragmatically-incorrect sentence. The mastery of the three aspects of a word — syntactic, semantic and pragmatic — is essential in foreign language learning. To achieve this goal, foreign learners need a CLD that offers systematic information on words.

In this regard, valency theory and valency dictionaries, having proved to be effective in foreign language teaching and learning (Herbst and Götz-Voteler 2007; Helbig and Schenkel 1969), could lend theoretical and practical support

for foreign learners to acquire Chinese vocabulary in that valency constructions present the syntactic-semantic-pragmatic information of lexical units in a systematic and comprehensive manner.

It is generally acknowledged that modern valency theory was founded by French linguist Lucien Tesnière (1959) and was then systematically developed by German scholars. The notion of valency was borrowed from chemistry. As atoms have the ability to combine with a certain number of other atoms to constitute larger units, words have the property of attracting a selected number of words to form larger units. Accordingly, valency can be generally defined as the 'ability of words to combine in this way with other words' (Herbst et al. 2004: vii). The first valency dictionary of German verbs was compiled in 1969 by German linguists Helbig and Schenkel, and then Sommerfeldt and Schreiber published valency dictionaries of German adjectives and nouns respectively in 1974 and 1977. Not incidentally, the first English valency dictionary (VDE) was also compiled by scholars from Germany (Herbst et al. 2004). One of the principal aims of valency dictionaries, as argued by Herbst et al. (2004: vii), is to help 'advanced foreign learners to write grammatically correct and idiomatic English because it shows them in which constructions a word can be used'. In this respect, the nature of valency dictionaries tallies with that of learners' dictionaries as the latter's 'most interesting features are their efforts to develop new ways of defining words and provide information necessary for encoding' (Béjoint 2002: 73).

VDE is by nature a descriptive dictionary that provides a comprehensive depiction of the valency properties of the English lexicon. The representation of comprehensive lexical information is realized by its profuse use of grammatical and semantic codes extracted and synthesized from the Bank of English and the COBUILD-corpus of present-day English. Metalexigraphers have expressed their concern over the use of codes in general-purpose learners' dictionaries: while compilers spare no efforts to include information for encoding in the dictionary, users take far less interest in consulting this type of information since they find information in coded form is too dense, confusing and time-consuming for grasping (Béjoint 2002; Cowie 2002). However, this concern about the usability of coded information for language production can possibly be lessened when taking into account users' study activities and proficiency level as well as the purpose of the dictionary. Bareggi's (1989) study shows that first-year undergraduates of English tend to use dictionaries mainly for decoding activities while from the third year on, they begin to attach equal importance to encoding. Bareggi (1989) also indicates that only 50 percent of the freshmen are able to comprehend grammatical codes, but for juniors, the figure rises to almost 100 percent. Neubach and Cohen (1988) also confirm that learners with high proficiency are better at making use of the dictionary information than those with low proficiency. At this point, VDE, as stated, primarily aims to serve the advanced learners in their encoding activities. It is expected that the intended users of VDE, if properly trained, can better understand and exploit the information for encoding activities.

Despite its strengths, Fillmore (2008) points out some weaknesses of VDE, which may impair its practicability. For instance, VDE treats verbs in detail and at length while not giving equal weight to nouns and adjectives. Particularly, the nouns derivationally related to verbs have combinatory properties similar to those of the corresponding verbs and thus need to be treated equally. This critical point is a significant reminder for future research and compiling of a Chinese valency dictionary undertaken by the present study. Moreover, 'by being corpus-based and therefore non-prescriptive, VDE has no way to introduce negative evidence, and the entries are not set up to include warnings about mistakes' (Fillmore 2008: 78). This indicates the importance of including learner corpora, in addition to native speaker corpora, in the construction of a Chinese valency dictionary to provide prescriptive guidelines for users. Therefore, apart from the description of valency information gained from a native speaker corpus (CCL), the current study will provide 'Note' blocks, alerting the users to common lexical errors extracted from a learner corpus (HSK Corpus). (See examples in Section 3.4 and Figure 3 in Section 4.)

Just as the compilation of VDE was greatly influenced by German thoughts of valency, the introduction of valency theory into China was initially promoted by Chinese scholars of German language (Wu 1996). Valency theory was widely used in the study of Chinese grammar (Shen 2000; Shen and Zhen 1995; Yuan 2010; Zhou 2011) and teaching Chinese as a foreign language (Lu 1997; Shao 2002). Correspondingly, some scholars proposed that the theoretical framework of valency be employed to construct CLDs. Mei (2003) believes that valency theory can be utilized to help set up the grammatical information of modern Chinese learners' dictionaries. With regard to the difficult issue of synonym discrimination that often challenges foreign learners of Chinese, Zhang's (2007) study holds that the syntactic, semantic and pragmatic levels explicitly presented by valency models can provide elaborate discriminatory information of synonyms. Xu (2012) examines divalent Chinese nouns in the *Contemporary Chinese Dictionary* (native-speaker-oriented) and the *Commercial Press Learners' Dictionary of Contemporary Chinese* (foreign-learner-oriented). Xu (2002) found that about 40% of the lexicographic definitions and examples in these two dictionaries do not incorporate valency elements. This calls for the urgent task of systematically organizing the complements of divalent nouns in CLDs. Furthermore, Han and Han (1995a and 1995b) endeavoured to compile a 'contrastive German–Chinese valency dictionary of verbs'. Taking Mannheim school's valency theory as the foundation, they adopted a semantic view of valency for describing Chinese verbs' valency patterns. Similarly, Zhan (2000) proposed to develop a valency-based dictionary — *A Valency-Based Semantic Dictionary*. Zhan (2000) holds the view that the representation of the semantic valency information of a Chinese synonymous word in the dictionary can help differentiate the semantic collocations in its different senses, thus assisting the computer to identify accurate English equivalents.

In light of the previous review of valency dictionaries, the research into

and the compilation of a Chinese valence dictionary for foreign learners, which primarily aims to provide comprehensive syntactic-semantic-pragmatic information of lexical units, is of practical significance. For one thing, the inclusion of valency into dictionaries can solve, at least to a considerable degree, the problems of current CLDs such as lack of syntactic information, under-differentiated senses and ill-arrangement of examples according to syntactic features of the headwords. For another, there are only limited studies that relate valency theory to CLDs. Some of these studies base the syntactic and semantic collocation information on researchers' intuition and introspection rather than on corpus evidence. In this regard, the present study follows the compilation principle of the *Valency Dictionary of English*, which combines 'corpus research and the theoretical background of valency theory' (Herbst et al. 2004: xxii). On account of these problems and facts, the research question of this study is how the syntactic and semantic properties of a word can be retrieved from the corpora and be presented in a Chinese valency dictionary to facilitate foreign learners' vocabulary acquisition. To answer this question, the study firstly elaborates on valency theory and key concepts of the user perspective (Section 2). It then employs two Chinese corpora and the *Valency Dictionary of English* to analyze the misuse of Chinese vocabulary within the valency framework, for the purpose of setting up a database for the construction of a Chinese valency dictionary (Section 3). Finally, the study tentatively designs a valency entry of a Chinese word based on the results of analysis (Section 4).

2. Valency theory and the user perspective

This section lays the theoretical basis from two parts. One is the construction of a valency framework for data analysis and discussion as well as the design of a valency entry in a proposed Chinese valency dictionary. Another part is the user perspective from which the user-friendliness of the Chinese valency dictionary undertaken by this research project can be enhanced.

2.1 The valency framework

Different researchers compare valency to different but similar concepts. Tesnière, the founder of valency theory, perceives a verb as an '*atome crochu*' (atom with hooks) which can attract a certain number of actants as its '*dépendance*' (1959: 238). De Groot (1949) focuses on the idea of 'restriction', arguing that different classes of words have different patterns of syntactic valency and that valency refers to the possibility and impossibility of headwords restricting or being restricted by other words. Therefore, valency is not an exclusive property of verbs but a shared capacity of all other word classes such as nouns, adjective, adverbs, prepositions, numerals, etc. In fact, Sections 73 to 77 in Tesnière's (1959) work discusses the valency structure of nouns, adjectives and adverbs. Kac-

nel'son's (1948 and 1988) key idea is 'potentiality', defining a word as a lexical unit that has syntactic potentiality, which enables content words to combine with other words. Hence, valency is regarded as a means to express potential syntactic relations or to uncover potential grammatical phenomena.

Based on Tesnière and other forerunners, German scholars developed the valency theory into a system. In general, the valency framework constructed by German scholars can be summarized with regard to three dimensions: logical-semantic, syntactic and semantic (Gao and Liu 2019; Han 1993 and 1997). Bondzio (1978) upholds the concept of logical-semantic valency. A headword has the ability of governing other words (i.e. complements) by assigning different semantic roles to them. For example, the verb *visit* reveals the relation between 'visitor' and 'the visited'. Bondzio (1978) adopts the term 'slot' from logic to refer to the relations between the headword and its dependents. In this respect, *visit* has two slots determined by its semantic components. Accordingly, these conceptually based slots constitute the valency of a word, and the number of slots corresponds to the number of valency. Hence, logical valency relates to the quantitative aspect of valency.

Syntactic valency, put forward by Helbig (1992), is the formal realisation of logical valency in a language. In a particular sentence, the logical-conceptual relations are transformed into syntactic relations. However, syntactic structure and logical structure do not coincide on many occasions because sometimes the former cannot fully realize the latter. For instance, logically, *give* is a trivalent verb that can govern three elements 'agent', 'patient' and 'recipient'. Syntactically, *give* can be a monovalent, divalent or trivalent verb as in the sentences *To give or take is a choice*, *They were given a box to carry* and *My teacher gives me a book*. Therefore, a logical valency structure may have different syntactic representations.

Different from logical valency, semantic valency is concerned with the semantic or collocational properties of the headword. The semantic roles assumed by the complements of the headword, as depicted in logical valency, need to have compatible properties in order to combine with the headword (Han 1993). As seen in the Introduction, *baifang* (拜访, visit) prerequisites its PATIENTs to have the semantic feature of 'elder members of one's family, not including parents'. As a result, although *I baifang my parents* is logically and syntactically correct, it is semantically improper in terms of the valency framework.

In addition to logical, syntactical and semantic valency, another aspect — pragmatic valency — is put forward and discussed by some linguists. Růžička (1978) connects valency with communication, pointing out that the selection of complements, mainly optional complements, depends on the context of communication. In certain communicative contexts, obligatory complements can also be removed from the sentence. Helbig (1992) further probes into the connections between valency and communication. Apart from Růžička's idea of contextual selection of complements, Helbig includes two other factors: text

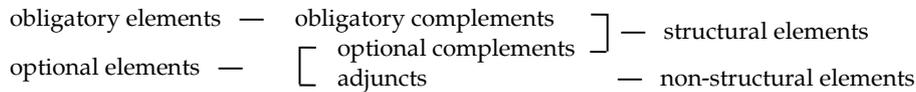
style and semantic collocation. Complementation patterns are determined by various styles of texts, which, in turn, are decided by communicative purposes. For semantic collocation, it refers to the semantic valency mentioned earlier. As the headword presupposes the semantic features of its complements, when they are collocated in such a way, pragmatic errors can be avoided.

Based on German scholars' study on valency, the present study employs a similar but slightly different valency framework. As Section 3 analyzes lexical misuse committed by foreign learners of Chinese due to their misapplication of valency patterns, the analysis will be approached from three aspects of valency: logical-semantic, syntactic and semantic-pragmatic (Gao and Liu 2019). Logical-semantic valency and syntactic valency are drawn respectively from Bondzio (1978) and Helbig (1992) as mentioned earlier in this section, with the former referring to the repertoire of semantic roles assumed by the complements of a headword and the latter referring to the formal realisation of logical-semantic valency in a sentence. However, the sentence formed out of syntactic arrangement of semantic roles is sometimes incorrect in terms of other semantic and pragmatic requirements. These factors, such as semantic features (\pm Human, \pm Elder members of the family), text styles (Literary, Explanatory), registers (Written-Formal, Spoken-Informal), emotive variables (Derogatory-Commendatory) and other contextual factors, need to be taken into account. Therefore, semantic-pragmatic valency integrates these factors to guarantee the generation of semantically and pragmatically correct sentences. In summary, the valency framework adopted by this study is illustrated in Table 1 (Gao and Liu 2019: 331):

Table 1: The valency framework

The valency framework	
Logical-semantic valency	Quantitative aspect of valency: the whole array of semantic roles of complements presupposed by headwords, such as 'agent', 'patient' and 'recipient'
Syntactic valency	Formal aspect of valency: syntactic realisation of logical-semantic valency
Semantic-pragmatic valency	Qualitative aspect of valency: semantic features (\pm Human, \pm Elder members of the family), genres (Literary, Explanatory), registers (Written-Formal, Spoken-Informal), emotive variables (Derogatory-Commendatory), and other contextual factors

There is a pair of concepts requiring further explanation, namely complement and adjunct. Although complements and adjuncts are elements of a sentence, they have different structural status. Helbig and Schenkel (1969) have differentiated these two elements as shown below:



Obligatory and optional complements can be distinguished through an 'Eliminierungstest' (elimination test). For instance, in the sentence *He gives me a smile*, if all the complements are deleted one by one, only sentence b is correct:

- a. ___ gives me a smile.
- b. He gives ___ a smile.
- c. He gives me ___.

In this case, 'He' and 'a smile' are obligatory complements while 'me' is optional.

Schumacher (1986) uses the method of an 'Implikationsprobe' (implication) to differentiate optional complements from adjuncts. This method is based on logical-semantic valency, which gives a full list of semantic components of the governing word. Although not all the semantic components are selected in a particular sentence within a particular context, they are implied or presupposed by their governor. For example, *bring* (within the sense of CARRY) implies three semantic components: somebody brings something to somebody else. As a result, for the sentence *He brought a dictionary to me three days ago*, after all the elements are deleted one by one, sentences c and d are correct:

- a. ___ brought a dictionary to me three days ago.
- b. He brought ___ to me three days ago.
- c. He brought a dictionary ___ three days ago.
- d. He brought a dictionary to me ___.

'To me' in sentence c is a semantic component implied by the governing word *bring*; whereas 'three days ago' in sentence d is not within the list of implied complements. Thus, 'to me' is an optional complement and 'three days ago' an adjunct.

The example entry of a Chinese learners' dictionary in Section 4 will be designed within the valency framework and find a practical way to treat obligatory complements, optional complements and adjuncts in the dictionary. Section 3 utilizes the valency framework established as such to analyze and discuss the lexical misuse committed by foreign learners of Chinese, the purpose of which is to prepare authentic data from learner and native speaker corpora for the construction of a Chinese valency dictionary. However, the compiling of a dictionary needs not only guidance from linguistic theory, but also lexicographical principles in order to cater to the needs of intended users. For this reason, the next section adopts the user perspective to set up the basis for its usability.

2.2 Valency dictionaries and the user perspective

Valency dictionaries have been claimed to be a useful reference tool for foreign language learning owing to its comprehensive and systematic description of lexical information. For example, Herbst et al. (2004: vii) state in the VDE that the following questions, which may baffle English learners, can be answered by consulting the dictionary: 'Is it *avoid to do something* or *avoid doing something?*', 'is *try to do something* the same as *try doing something?*', or 'Can you say *the exhibition opened* in English or not?'. Nevertheless, there is no empirical evidence to testify to the usability of valency dictionaries. This study also endeavours to conceive a valency dictionary for foreign learners of Chinese. This conception is, to some extent, limited in that it involves no user surveys, which may not give the intended users what they want in the dictionary. For this limitation, the present authors attempt to fulfil the minimum requirement for lexicographers as proposed by Béjoint (2002: 112): 'Lexicographers must give to the public what the public expects, or at least what they think the public expects, at the expense if necessary of what a truly scientific description of the language would require'. For this purpose, the study employs some of the key concepts of the user perspective to design the dictionary, which is constructed within the valency framework and on the basis of corpus data, for meeting the needs of the expected users. As well, in the last section, this limitation is included as a suggestion for further research into users' expectation in regard to valency dictionaries.

Hartmann (2005) summarises six user perspectives: pedagogical lexicography, dictionary awareness, user sociology, reference needs, reference skills and user training. As these perspectives are interrelated, the study discusses them from four viewpoints.

Firstly, the Chinese valency dictionary proposed in this study is pedagogical in nature. It is a tendency for modern British pedagogical dictionaries to include more information for encoding, such as syntactic patterns, collocations and registers (Béjoint 2002; Svensén 1993). This reflects an increasing need for productive activities on the part of foreign learners. While traditional learners' dictionaries need to consider the simplicity of the setup of encoding information to cater to the need of common users, which may lead to the omission of some vital information (Cowie 2002), a valency dictionary can explicitly present as much encoding information as possible by essentially focusing on helping learners with their encoding tasks. This pedagogical purpose with encoding orientation is reflected in the design of a valency entry of a Chinese valency dictionary in Figure 3, Section 4. Moreover, as argued by Fillmore (2008), valency dictionaries for foreign learners need not only descriptive representation of encoding information, but also prescriptive guidelines. In this regard, the proposed Chinese valency dictionary provides 'Note' blocks, which warn users against common lexical errors found in a learner corpus. (See examples in Section 3.4 and Figure 3 in Section 4.)

Secondly, according to Hartmann (2005), users of pedagogical dictionaries

generally have a low level of awareness of dictionary contents and typology. They, especially low-level users, are more familiar with and take more interest in such information categories as meaning and spelling while neglecting those for encoding activities, such as frequency, syntactic patterns and collocations (Béjoint 2002). The low level of dictionary awareness leads to users' failure to make full use of the information, thus reducing the potential usefulness of a dictionary. Furthermore, the valency dictionary, specially designed for encoding, is relatively new in lexicographical typology, and little is known of its population of active users, as well as their knowledge, proficiency level and skill at using the dictionary. The urgent task, as expressed by some metalexicographers (Béjoint 2002; Cowie 2002; Hartmann 2005), is to introduce user training programs to improve user skills, which entails the joint efforts of the whole education system. For instance, user training programs need lessons and instructions from teachers, the setup of lexicographical courses by academic institutions, the inclusion of user training in the national curriculum by educational departments, the supply of easy-to-read users' guides and workbooks by publishers, and improvements in the user-friendliness of dictionaries on the part of lexicographers.

Thirdly, user sociology and needs are closely connected, as Hartmann (1989: 103) hypothesizes that 'different user groups have different needs'. Among the six aspects regarding reference needs (Hartmann 2005: 88), two are relevant to the present study: text production (semantic or syntactic problems for writers) and language acquisition. In order to investigate these needs for a better design of the Chinese valency dictionary, an intricate set of sociological variables of users — age, gender, first language background, foreign language proficiency level, educational background, habit of using dictionaries, attitude toward dictionaries, ownership, dictionary awareness, etc. — should be taken into consideration in future surveys as suggested in Section 5. For achieving as much user-friendliness as possible, the study, in its present form, attempts a short profile of prospective users, including the explanation of their proficiency level and the contexts in which they are expected to use the dictionary. (See Section 4.)

Fourthly, a good command of reference skills is the prerequisite for successful dictionary use and the ensuing satisfaction of user needs. The types of linguistic activities conducted by users determine the types of skills and strategies needed in the look-up process (Hartmann 2005, Wiegand 1998). As mentioned, the Chinese valency dictionary examined in this study aims to meet the user needs of language acquisition in general and text production in particular. It is suggested that in future empirical surveys, special attention be paid to the skills required in the consultation of information in the Chinese valency dictionary for writing activities engaged in by foreign learners of Chinese. Specifically, the survey could be implemented according to the seven essential components of the consultation process specified by Hartmann (2005: 90-92): activity problem, determining problem word, selecting dictionary, external search (macrostructure), internal search (microstructure), extracting relevant

data and integrating information. Another possible way of training users' reference skills for consulting the Chinese valency dictionary is to provide relevant training exercises in the front or back matter.

This section first establishes the linguistic foundation — the valency framework — for designing a Chinese valency dictionary and then touches on the user perspective in the hope that the design and the future compilation of the dictionary could be friendly to prospective users, on the basis of which the data analysis and discussion in the next section are conducted.

3. An analysis of lexical misuse caused by misapplication of valency patterns

3.1 Research design

The present section of this study comprises three main parts. In section 3.2 misused cases of Chinese words are collected from the HSK Dynamic Compositions Corpus (hereafter HSK Corpus). In section 3.3 an analysis of the collected data is conducted along the three dimensions of the valency framework. The analysis is assisted by consulting three Chinese dictionaries and the Beijing University Corpus of Modern Chinese Language (CCL). In section 3.4 the results of the analysis, which have implications for a Chinese valency dictionary, are discussed, and then a comparison is drawn between the valency patterns of misused words and those of English equivalents in order to identify the influence of improper transfer of valency structure on lexical use, which suggests the idea of a contrastive bilingual valency dictionary.

It is necessary to make a brief introduction to HSK Corpus and CCL before the analysis unfolds. As the source of data collection, HSK Corpus is a learner corpus developed by Beijing Language and Culture University. It collected the compositions of non-native learners of Chinese who participated in HSK high-level tests from the year 1992 to 2005. Its scope now reaches 4,240,000 words and 11,569 compositions. Besides the collection of original compositions through scanning, it includes annotated materials in which interlanguage misuse is manually labelled. The annotation covers five levels of the Chinese language: Chinese characters, punctuation, words, sentences and texts. This study stays at the level of words whose annotation ranges from misused words, missing words to unnecessary words, supplemented by the statistics of various types of lexical misuse.

As the reference corpus, CCL is a native speaker corpus developed by the Center for Chinese Linguistics, Beijing University. It collects various sources of modern Chinese language such as spoken language materials from TV dialogues and interviews as well as written language materials from history, government white papers, economic reports, health and medicine, dictionaries, newspapers, films, literature, translation, essays, etc. Its scope now reaches 581,794,456 words.

3.2 Data collection

As mentioned earlier, HSK Corpus provides its users with statistical facts about interlanguage misuse at all levels. This study focuses on the lexical level, but due to the limitation of time and space, it does not attempt to examine all the types of lexical misuse committed by foreign learners of Chinese, only selecting some samples. First, Chinese words whose *pinyin* (Chinese pronunciation system) begins with letter Z are chosen as the level-one sample for investigation. The Z-group occupies the largest portion of Chinese words in the corpus (grouped together according to initial *pinyin* letters), containing 2,369 words, among which 622 are annotated as misused cases. These 622 annotated words are then selected as the level-two sample for examination. The annotation covers all types of misuse such as misspellings, missing words and unnecessary words. As well, the annotation covers all classes of words like nouns, verbs, adjectives, adverbs, conjunctions, prepositions, etc. For a systematic and thorough inquiry into complementation patterns, the study chooses verbs as the level-three sample. We conduct a close screening of these verbs one by one in order to trace interlanguage misuse caused by improper transfer of valency patterns from English to Chinese.

The criterion of screening is that the misused word and the correct one provided by the corpus share the same English equivalent(s). The equivalents are confirmed by consulting some Chinese dictionaries for foreign learners such as *A Dictionary of Chinese Usage: 8000 Words* (Chinese Proficiency Center Beijing Language and Culture University 2000) (hereafter HSK 8,000) or bilingual dictionaries for native learners such as *A New Century Chinese-English Dictionary* (Hui 2004). In Example 2, *zhuanbian* (转变) and *gaibian* (改变) have the same English equivalent 'change', but *zhuanbian* is labelled as a misused case. The reason is that although *zhuanbian* and *gaibian* can both govern such complements as 'attitudes' and 'ideas', 'living environment' is not within the governing power of *zhuanbian*. The meaning nuance of this pair of near-synonyms is implicitly embodied in their semantic collocations, and this implicitness can be unearthed from the perspective of semantic-pragmatic valency.

- (2) 我 现在 生活 的 环境 转变 (改变) 了 很多。
wo xianzai shenghuo de huanjing zhuanbian (gaibian) le henduo.
My current living (aux.) environment change (-ed) a lot.
My current living environment has changed a lot from my parents'.

However, in Example 3, *zhuijiu* (追究, find out/investigate) and *zhuiqiu* (追求, pursue/go after) do not share the same English equivalent. The obvious meaning differences between this pair of lexical items do not necessarily call for a close examination within the valency framework. Thus, cases of this kind are excluded from the study.

- (3) 有些人还追究 (追求) 美食。
youxie ren hai zhuijiu (zhuiqiu) meishi.
 Some people still investigate (pursue) table delicacies.
 Some people pursue table delicacies.

Furthermore, the corpus provides all the misused cases of a word owing to its polysemous nature. Hence, the misuse of a polysemous word can be classified into one or more than one group, and each group is represented by a synonym of one of the senses of the word in question. For instance, the misuse of the word *zaocheng* (造成, create; cause/give rise to; bring about) fall into three groups represented respectively by its synonyms *chuangzao* (创造, create), *chansheng* (产生, cause/give rise to) and *dailai* (带来, bring about). Each group is treated as a case. Finally, after screening, there are 60 cases found in level-three samples, as displayed in Table 2:

Table 2: The list of misused cases for analysis

No.	Misused verbs	Correct verbs	Shared equivalents	No.	Misused verbs	Correct verbs	Shared equivalents
1	造成	创造	create	31	主张	提出	propose
2	造成	产生	cause, give rise to	32	主张	坚持	maintain
3	造成	带来	bring about	33	主张	维护	maintain
4	遭到	遇到	encounter	34	转	推	shift
5	赞扬	赞赏	speak highly of	35	转变	改变	change
6	赞成	支持	approve	36	转换	改变	change
7	战胜	取胜	win	37	祝愿	祝	wish
8	展开	睁开	open	38	注重	关注	pay attention to
9	展开	张开	spread	39	注意	关注	pay attention to
10	照顾	考虑/顾及	consider	40	注意	关心	care for
11	招揽	招	recruit	41	招来	得到	attract
12	掌握	把握	grasp	42	注意	专心	concentrate one's attention on
13	掌握	控制	control	43	注目	注意	keep one's eyes on
14	掌	拿	hold	44	追	追求	pursue
15	珍重	珍惜	treasure	45	撞到	碰到	run into
16	珍惜	爱惜	cherish	46	装	装作	pretend
17	争斗	争取	fight for	47	装满	充满	fill up
18	执行	进行	carry out	48	着想	来看	considering
19	知悉	了解/知道	know	49	滋长	形成	develop
20	知道	认识	know	50	总结	结束	conclude
21	知道	了解	know	51	组织	组建	organize
22	知道	明白	understand	52	组成	营造	form
23	止	戒	stop, quit	53	组成	构建	form
24	制作	制造	produce	54	走	去	go to
25	指点	指出	point out	55	走	走路	walk
26	指导	引导	guide, direct	56	走入	步入/进入	step into, enter into
27	治疗	治好	cure	57	遵守	保持	keep
28	治疗	解决	cure	58	遵守	坚持	stick to
29	助长	帮助	facilitate	59	作出	得出	work out
30	住	留	stay	60	作出	制定	make

3.3 Data analysis

This section scrutinizes lexical misuse within the valency framework and identifies the dimension(s) — logical-semantic, syntactic or semantic-pragmatic — in which the misuse occurs. The scrutiny of lexical misuse is first conducted by consulting both native-speaker-oriented (the *Contemporary Chinese Dictionary*) and foreign-learner-oriented (the *Commercial Press Learners' Dictionary of Contemporary Chinese*; HSK 8,000) Chinese dictionaries. In Example 4, *zhansheng* (战胜, win) is usually a transitive divalent verb that governs an object such as an enemy, a team or difficulty (from the *Contemporary Chinese Dictionary*). Therefore, it is incorrect to use *zhansheng* as a monovalent verb without objects; whereas *qusheng* (取胜, win), an intransitive monovalent one, is appropriate. This kind of misuse involves logical-semantic valency.

- (4) 是 为了 提高 自己, 并 不是 只 为了 战胜 (取胜)。
shi weile tigao ziji, bing bushi zhi weile zhansheng (qusheng).
Be to improve oneself, and not just to win.
The purpose is to improve oneself rather than to win.

In Example 5, both *zanyang* (赞扬, praise) and *zanshang* (赞赏, praise) are divalent verbs, but only *zanshang* can be used in the syntactic pattern 'dui (对, treat) + NP + hen (很, very) + VP' (from HSK 8,000). Therefore, these misused cases involve syntactic valency.

- (5) 我 对 这种 人 很 赞扬 (赞赏)。
wo dui zhezhong ren hen zanyang (zanshang).
I to this kind person very praise.
I speak highly of this kind of person.

In Example 6, it is semantically correct for *zhidao* (知道, know) to be collocated with 'one's thoughts' (from the *Contemporary Chinese Dictionary*). However, in this specific context, *mingbai* (明白, understand) is more appropriate. These cases of misuse, which are largely due to contextual factors, involve semantic-pragmatic valency.

- (6) 子女 ... 才 知道 (明白) 父母 的 想法。
zinv ... cai zhidao (mingbai) fumu de xiangfa.
Children ... just understand parents (aux.) thoughts.
Children began to understand parents' thoughts.

In Example 7, *zhuanhuan* (转换, change) can be both a monovalent and divalent verb and its usage conforms to syntactic rules. However, its object is usually attitude, direction, topic, or pattern, not including environment which, nevertheless, can be governed by *gaibian* (改变, change) (from HSK 8,000). Hence, the semantic collocation is improper. These cases of misuse involve semantic-pragmatic valency.

- (7) 为了 转换 (改变) 一下 工作 环境 ...
weile zhuanhuan (gaibian) yixia gongzuo huanjing ...
To change one time working environment ...
In order to change working environment ...

In Example 8, *zhiliao* (治疗, cure) is a transitive divalent verb and its semantic collocates include 'disease' (from HSK 8,000). Nevertheless, in this context, the speaker implies that the disease needs to be treated and the patient can thus recover. In this respect, *zhihao* (治好, cure) is correct because it incorporates both of the semes 'to treat a patient' and 'to help a patient gain recovery'. Thus, these cases of misuse are motivated by semantic and contextual factors and fall into the dimension of semantic-pragmatic valency.

- (8) 病人 的 病 严重, 没有 希望 治疗 (治好)。
bingren de bing yanzhong, meiyou xiwang zhiliao (zhihao).
Patient (aux.) disease serious, does not have hope be cured.
The patient is seriously ill and has no hope of being cured.

However, some analyses of lexical misuse cannot be accomplished by simply consulting dictionaries. As mentioned in the Introduction, the majority of the definitions and examples in these dictionaries do not contain full lists of complementation patterns (Xu 2012). To solve this problem, the present study turns to CCL, a large-scale native Chinese speaker corpus, by adopting the method of studying semantic prosody (a corpus-based study of the semantic environment of a given word). The approach is a combination of corpus-based and corpus-driven investigations, which involves four steps (Partington 1998; Sinclair 1991 and 1996; Wei 2002). Firstly, a number of concordance lines are randomly retrieved from the corpus. The next step is to determine the span of the node word and then establish colligation(s) (i.e. syntactic structure) by observing the collocates around the node word. Then, semantic features of these collocates are analyzed. The last step is to draw out the semantic prosodies of the key word. This approach can lend support to the analysis of valency structure. The colligations established by observing collocates help identify complementation patterns. The revelation of semantic features of collocates helps to work out a relatively full list of semes of the headword. More importantly, the conclusion of semantic prosodies helps uncover pragmatic information of the headword such as emotive variables.

In Example 9, the usage of *zhaolai* (招来, attract) cannot be found in these dictionaries. For this reason, the study opts for a corpus-based and corpus-driven method and it entails three steps.

- (9) 流行 歌曲 ... 招来 (得到) 人们 的 喜欢 和 支持。
Liuxing gequ ... zhaolai (dedao) renmen de xihuan he zhichi.
Popular songs ... attract people (aux.) fondness and support.
Popular songs attract people's fondness and support.

Step 1: The establishment of colligations

The frequency of occurrence of the node word *zhaolai* in CCL is 1,444, from which we randomly select 100 concordance lines. The span is set as -7/+7, and the words within this span are collocates for observation. Our study shows that there are 5 types of colligations for the node word *zhaolai*:

1) NP + *zhaolai* + NP. This colligation is the most frequent, accounting for 83% of the total concordances.

2) *zhaolai* + *de* (的, structural auxiliary). The colligation accounts for 8% of the total concordances. This construction functions mostly as adjectives (7%) to modify nouns, such as *zhaolai de gongren* (招来的工人, recruited workers), *zhaolai de xuesheng* (招来的学生, recruited students) and *zhaolai de pengyou* (招来的朋友, invited friends). Only one case acts as a noun (1%), such as *zhaolai de ze shi yidui fen'nu de qianze* (招来的则是一堆愤怒的谴责, What our action incurred was a pile of furious denunciation).

3) NP + *shi* (是, be) + *cong* (从, from) + someplace + *zhaolai* + *de* (的, structural auxiliary). This colligation takes up 4% of the total. For example, *zhanshi duoshu shi cong nongcun zhaolai de* (战士多数是从农村招来的, Most of the soldiers were conscripted from rural areas).

4) *ba* (把, used to advance the object of a verb to the position before it) + NP + *zhaolai* + *le* (了, structural auxiliary). This colligation only occurs once (1%). For example, *ba gongren zhaolai le* (把工人招来了, Prospective employees were recruited).

5) Idioms or fixed phrases. There are four cases of idioms centered on *zhaolai* (4%), such as *zhaolai huiqu* (招来挥去, to call in and send away sb. at will) and *congshi zhaolai* (从实招来, admit it; make a clean breast of everything).

Step 2: Collocates and their semantic properties

The first type of colligation forms the overwhelming majority of all the concordances, and the complements of *zhaolai* (招来, attract) are divided into three groups:

Group one: people (such as staff, talented human resources, soldiers, customers and readers) and vehicles. The colligations with this group of complements occupy 31% of all the concordances.

Group two: negative comments, emotions and attitudes (such as condemnation, reproach, indifference, sarcasm, quarrel, catcall, dissatisfaction, criticism and rude language) as well as unfavourable things (such as disaster, trouble, punishment, ill consequence and mosquito). The frequency of this group of complements is higher than that of group one, reaching 46%.

Group three: resisting power (such as opponent, counter-attack and resistance).

The colligations with this group of complements take up only 6%.

The complements in the second type of colligation, which account for 8%, are divided into two groups:

Group one: people (such as personnel, talented human resources, soldiers and friends). The colligations with this group of complements take up 7%.

Group two: negative comments (such as quarrel). The colligation represented by this group occurs once (1%).

The complements in the third type of colligation, which account for 4% of concordances, fall into one group, that is, people such as workers, child labourers and soldiers.

For the fourth type of colligation, which accounts for 1% of concordances, the complement of the governing word *zhaolai* is employees.

The fifth type of colligation (4%) has no explicit complements.

The semantic features of the complements in those colligations can be summarized as follows. The governing verb *zhaolai* presupposes three classes of complements whose respective semantic components are: people; negative comments, emotions, attitudes, unfavourable things; and resisting power.

Step 3: Prosodic structure

Based on the above observations concerning the semantic features of complements, the prosodic structure of *zhaolai* (招来, attract) is summarized in Table 3:

Table 3: The prosodic structure of *zhaolai*

招来	Group of complements	Positive prosody	Negative prosody	Neutral prosody
Colligation 1 (83%)	people, vehicles (31%)	—	—	31%
	negative comments, emotions and attitudes, unfavourable things (46%)	—	46%	—
	resisting power (6%)	—	2%	4%
Colligation 2 (8%)	people (7%)	—	—	7%
	negative comment (1%)	—	1%	—
Colligation 3 (4%)	people (4%)	—	—	4%
Colligation 4 (1%)	people (1%)	—	—	1%
Colligation 5 (4%)	fixed phrases (4%)	—	4%	—
	Total	—	53%	47%

It can be seen from the table that *zhaolai* is not surrounded by a positive semantic environment but by the nearly even configuration of negative and neutral prosodies. Apart from the groups of 'fixed phrases' and 'resisting power', when *zhaolai* is collocated with "people", it carries a neutral prosody, and when collocated with the group of complements — negative comments, emotions and attitudes — it carries a negative prosody. When it comes to Example 9 where *zhaolai* collocates with two positive emotive and attitudinal words *xihuan* (喜欢, fondness) and *zhichi* (支持, support), the foreign learner obviously misuses the word in terms of semantic-pragmatic valency.

With the joint assistance of dictionaries and corpora, the 60 cases of lexical misuse listed in Table 2 are examined and the misuse of valency are identified. The results are summarized in Tables 4, 5 and 6 (due to the limitation of space, examples from the HSK Corpus are not provided):

Table 4: Lexical misuse in the dimension of logical-semantic valency

No.	Misused verbs	Correct verbs	Shared equivalents	Causes for misuse
1	战胜	取胜	win	As a divalent verb, it lacks a 'patient' and cannot be used as an intransitive verb.
2	总结	结束	conclude	As a divalent verb, it lacks a 'patient' and cannot be used as an intransitive verb.

Table 5: Lexical misuse in the dimension of syntactic valency

No.	Misused verbs	Correct verbs	Shared equivalents	Causes for misuse
1	赞扬	赞赏	praise	It cannot be used in the syntactic pattern: 对 (verb: treat) + NP + 很 (adverb: very) + ~.
2	招揽	招	recruit	It cannot be used in the passive pattern: 被 (preposition: by) + ~ + 入 (verb: enter) + someplace.
3	指导	引导	guide, direct	It cannot be used in the negative syntactic pattern: ~ + NP + 不(adverb: not) + VP.
4	注目	注意	fix one's eyes on	It is usually used in the idiom '引人注目' which acts as 'modifiers' or 'predicative'.
5	装	装作	pretend	It usually combines with '出' or '作' (together as verb phrase: pretend to be/as) to express the meaning 'pretend to be'.
6	着想	来看	considering	It cannot be used in the syntactic pattern: 以 (preposition: according to) + NP + ~.
7	走	去	go to	It cannot be used in the syntactic pattern: ~ + 了 (structural auxiliary) + someplace.

Table 6: Lexical misuse in the dimension of semantic-pragmatic valency

No.	Misused verbs	Correct verbs	Shared equivalents	Causes for misuse
1	造成	创造	create	Semantically, it cannot be collocated with 'future'.
2	造成	产生	cause, give rise to	Semantically, it cannot be collocated with 'the feeling of dissatisfaction', though it can be collocated with 'dissatisfaction'.
3	造成	带来	bring about	Semantically, it cannot be collocated with 'side effects (caused by pesticide)'.
4	遭到	遇到	encounter	Semantically, it cannot be collocated with 'troubles or difficulties'.
5	赞成	支持	approve	Semantically, it cannot be collocated with 'green food'.
6	展开	睁开	open	Semantically, it cannot be collocated with 'eyes'.
7	展开	张开	spread	In the context, its seme [spread (arms)] does not agree with the action of 'supporting sb. to walk with hands'.
8	照顾	考虑/顾及	consider	Semantically, it cannot be collocated with 'others' feelings'.
9	掌握	把握	grasp	Semantically, it can be collocated with 'opportunities'; but in the context, this collocation is improper.
10	掌握	控制	control	Semantically, it cannot be collocated with 'neurons'.
11	掌	拿	hold in one's hand	Semantically, it cannot be collocated with 'lucky money wrapped in red envelopes'.
12	珍重	珍惜	treasure	Semantically, it cannot be collocated with 'resources or food'.
13	珍惜	爱惜	cherish	Semantically, it can be collocated with 'me'; but in the context, this collocation is improper.
14	争斗	争取	fight for	Semantically, it cannot be collocated with 'chance'.
15	执行	进行	carry out	In the context, it cannot be used in informal or unofficial writing.
16	知悉	了解/知道	know	In the context, it cannot be used in informal writing.
17	知道	认识	know	Semantically, it can be collocated with 'my classmates'; but in the context, this collocation is improper.
18	知道	了解	know	Semantically, it can be collocated with 'each other's family background or habit'; but in the context, this collocation is improper.
19	知道	明白	understand	Semantically, it can be collocated with 'one's thoughts'; but in the context, this collocation is improper.

20	止	戒	stop, quit	Semantically, it cannot be collocated with 'smoking'.
21	制作	制造	produce	Semantically, it cannot be collocated with 'cigarettes'.
22	指点	指出	point out	Semantically, it cannot be collocated with 'signs of development or one's mistake'.
23	治疗	治好	cure	In the context, it lacks the seme [to help a patient gain recovery].
24	治疗	解决	cure	Semantically, it cannot be collocated with 'problems'.
25	助长	帮助	facilitate	It usually governs the type of complements — 'negative emotions, attitudes, desires, or unfavourable trends, behaviours', but not positive ones.
26	住	留	stay	Semantically, it can be collocated with 'one's heart'; but in the context, it is improper to be used in a non-literary style of writing.
27	主张	提出	propose	Semantically, it cannot be collocated with 'one's own ideas'.
28	主张	坚持	maintain	Semantically, it cannot be collocated with 'one's own ideas'.
29	主张	维护	maintain	Semantically, it cannot be collocated with 'one's rights'.
30	转	推	shift	Semantically, it cannot be collocated with 'responsibility'.
31	转变	改变	change	Semantically, it cannot be collocated with 'living environment'.
32	转换	改变	change	Semantically, it cannot be collocated with 'working environment'.
33	祝愿	祝	wish	Semantically, it can be collocated with 'good health'; but in the context, this collocation is improper.
34	注重	关注	pay attention to	Semantically, it cannot be collocated with 'issue or contradiction'.
35	注意	关注	pay attention to	Semantically, it can be collocated with 'others' pains'; but in the context, this collocation is improper.
36	注意	关心	care for	Semantically, it can be collocated with 'academic performance'; but in the context, this collocation is improper.
37	注意	专心	concentrate on	Semantically, it cannot be collocated with 'learning'.
38	招来	得到	attract	It can govern the type of complements — 'emotions or attitudes', but only negatives ones, not positive ones.
39	追	追求	pursue	Semantically, it cannot be collocated with 'economic development, career or profits'.
40	撞到	碰到	run into	In the context, its seme [collide with] does not agree with the object 'eye'.

41	装满	充满	fill up	Semantically, it cannot be collocated with 'smell of cigarettes'.
42	滋长	形成	develop	It can govern complements with a derogatory sense — 'malpractice, bad habit, arrogance, or crimes', but not those with a positive sense.
43	组织	组建	organize	Semantically, it can be collocated with 'a family'; but in the context, this collocation is improper.
44	组成	营造	form	Semantically, it cannot be collocated with 'atmosphere'.
45	组成	构建	form	Semantically, it can be collocated with 'a wonderful world'; but in the context, this collocation is improper.
46	走	走路	walk	It is not proper in the context 'a baby learns to walk'.
47	走入	步入/ 进入	step into, enter into	Semantically, it cannot be collocated with 'modernisation or a scientific age'.
48	遵守	保持	keep	Semantically, it cannot be collocated with 'lifestyle'.
49	遵守	坚持	stick to	Semantically, it cannot be collocated with 'an idea or opinion'.
50	作出	得出	work out	Semantically, it cannot be collocated with 'different views'.
51	作出	制定	make	Semantically, it can be collocated with 'measures'; but in the context, this collocation is improper.

3.4 Discussion

In this section the results of the above analysis which have implications for the information structure of a Chinese valency dictionary are firstly discussed. It then compares the valency patterns of misused words with those of English equivalents in order to trace the influence of negative transfer of valency structure on lexical use, which may shed light on the construction of a contrastive bilingual valency dictionary.

From Tables 4, 5 and 6, it can be seen that the majority of cases of misuse occur in the dimension of semantic-pragmatic valency, taking up 85%. 11.7% of vocabulary misuse cases occur in the dimension of syntactic valency and only 3.3% in the dimension of logical-semantic valency. As argued by Han (1993), logical-semantic valency of a certain concept in different languages is generally the same because of people's shared experience. That is, the semantic roles of complements presupposed by the governing verb in different languages are nearly the same, or the governing verb has the same valency number in different languages. Thus, it is easy to explain that there are only two cases of misuse involving logical-semantic valency.

Different languages have different grammatical or syntactic systems. For

example, Chinese words lack inflections and derivations and the word order is relatively flexible, which is in stark contrast to English vocabulary. Consequently, there might be distinct differences between Chinese and English syntax. However, as the study shows, there are only seven cases of vocabulary misuse caused by improper application of syntactic patterns. One possible reason is that the language proficiency of these foreign learners who took part in HSK tests was not that high, so that they tended to use less complicated sentence structure. Another possible reason is that the study does not examine special constructions organized by structural auxiliaries such as *ba* (把, used to advance the object of a verb to the position before it), *bei* (被, used in the passive voice to introduce the doer of the action), *shi* (使, make/cause/have), *you ... you ...* (又 ... 又 ..., expressing the coexistence of several conditions or qualities), etc.

The bulk of the cases of misuse occurs in the semantic-pragmatic dimension. This type of misuse manifests a great diversity and can be attributed to the factors listed in Table 1 (The valency framework). Table 6 shows that most cases of semantic-pragmatic misuse can be ascribed to semantic collocation. Semantically, some headwords cannot govern particular complements. For instance, *zaodao* (遭到, encounter) cannot be collocated with 'troubles or difficulties', *zhiliao* (治疗, cure) cannot govern 'problems', and the object of *zhuangman* (装满, be filled with) should not be 'smell of cigarettes'.

Another leading factor is context, which gives rise to a number of cases of misuse. Some words, without contextual restrictions, can be in collocation with a range of words. However, in a particular context, the range of collocation is restricted. For example, in a general context, it is appropriate to say *Please zhuyi* (注意, pay attention to) *the pains of patients*. Nonetheless, in the sentence *I hope people from all walks of life can pay attention to the pains of patients*, the word *guanzhu* (关注, pay attention to) is more appropriate. Moreover, generally the expression *zhankai* (展开, spread) *arms* makes sense; but in the situation of helping children to walk with one's hands, the sentence *My father zhankai his arms to support me to walk* is awkward in the light of common sense.

The third semantic-pragmatic factor is emotive variables. The semantic environment around the headword decides its collocation with its complements. For example, *zizhang* (滋长, develop) tends to govern complements with derogatory sense — 'malpractice, bad habit, arrogance or crimes', but not those with positive sense.

As for register or formality of words, there are two cases of misuse. For instance, *zhixi* (知悉, know) is a word with high degree of formality and it cannot be used in informal writing.

The last factor is text style, with only one case of misuse. *zhu* (住, stay) is usually a word that is adopted in literary writing like poems. Therefore, it is stylistically improper to use this word in the sentence *His love zhu at my heart* in daily conversation.

In short, lexical misuse committed by foreign learners of Chinese can be analyzed from all three dimensions of the valency framework, with semantic-pragmatic errors being the most frequent. These results can be re-organized to be published as dictionary information. Specifically, the data gained from the native speaker corpus (CCL) can be presented as the basic information of a valency dictionary: quantitative valency, qualitative valency and valency patterns (Helbig and Schenkel 1969; Herbst et al. 2004). This treatment will be described and processed in detail in Figure 3, Section 4. The data gained from the learner corpus (HSK Corpus) can be arranged as tips or notes at the end of an entry so as to enhance learners' awareness of common lexical errors. This 'Note' block can be introduced by labels such as 'logical-semantic error', 'syntactic error' and 'semantic-pragmatic error'. For instance,

Note: Logical-Semantic Error It is incorrect to use '战胜' as an intransitive verb and add no object to it: ※ 比赛是为了提高自己, 并不是只为了战胜。The purpose of competition is to improve oneself rather than to win. '取胜', an intransitive verb, is more appropriate.

(Adapted from Example 4)

Note: Syntactic Error '赞扬' cannot be used in the syntactic pattern '对 + NP + 很 + VP': ※ 我对这种人很赞扬。I speak highly of this kind of person. '赞赏' would be appropriate in this pattern.

(Adapted from Example 5)

Note: Semantic-Pragmatic Error The objects of '转换' can be attitude, direction, topic, pattern or goal, not including environment: ※ 为了转换一下工作环境... In order to change working environment ... '改变' would be appropriate to govern the object 'environment'.

(Adapted from Example 7)

The possible causes for these cases of misuse are further discussed in the rest of this section by comparing the valency patterns of two misused words with those of English equivalents, which may help trace the influence of improper transfer of valency structure on lexical use. As noted, most contrastive valency studies are conducted among Indo-European languages such as German-English (Emons 2006, Mittmann 2007, Roe 2007), German-French (Plewnia 2006), German-Italian (Bianco 2006), German-Spanish (Fandrych 2006), German-Russian (Nübler 2006), German-Bulgarian (Baschewa 2006), German-Romanian (Stănescu 2006) and German-Polish (Schatte 2006). This study contributes to the few contrastive studies between Indo-European and Sino-Tibetan languages.

In Example 4, the English equivalent of the misused word *zhansheng* (战胜) is 'win'. According to the *Valency Dictionary of English* (Herbst et al. 2004: 948), the maximum number of valency complements of the headword is four and the minimum number is one, which means that 'win' can be used as an intransitive

verb. From Figure 1, the monovalent verb 'win' has two complementation patterns: NP + *win* and NP + be (expected, etc.) to + *win*:

- M He *won* at Oulton on 26 June, overtaking Andrews on the first lap. ◦ The Christian Democrat-led government of Chancellor Helmut Kohl – who came to power in West Germany eight years ago – is widely expected to *win*.

Figure 1: Monovalent patterns of *win*

When composing a Chinese sentence which expresses the meaning — 'The purpose is to improve oneself rather than to win', the student may resort to his/her bilingual mental lexicon and retrieve the word *zhansheng* from his/her knowledge about Chinese. In the meantime, his/her inherent knowledge of the English word *win* is activated. Following the wrong association of the divalent Chinese verb *zhansheng* and the monovalent pattern of the English verb *win*, lexical misuse may occur.

In Example 7, the English equivalent of the misused word *zhuanhuan* (转换) is 'change'. According to VDE (Herbst et al. 2004: 122), this headword can govern at most four complements. From Figure 2, it can be seen that one possible object of divalent *change* is 'school', which indicates a particular environment or location:

- D1 + N_p
A Emotions can *change* the perception of pain.
◦ Its flowers *change* colour as they mature.
B On this occasion she paused long enough to bathe her blistered feet and *change* her blouse.
C Spain is only a little over five hours from Paris, though travellers must *change* trains at the frontier.
D Ronnie didn't want to *change* schools, so he travelled with his dad to and from school every day even though it was a long way.
E So this morning we went to *change* some dollars in a shop.

Figure 2: Possible complements of the divalent verb *change*

In order to express 'to change my working environment' in Chinese, the examinee retrieves the word *zhuanhuan* and activates his/her knowledge about the semantic properties of *change*. The juxtaposition of *zhuanhuan* (whose list of objects excludes 'environment') and the semantic properties of *change* (which

empower the verb *change* to govern the object 'environment') may result in a pragmatic failure.

The above discussion shows that through the analytic lenses of the valency framework, the influence of improper transfer of the valency structure from one language to another can be revealed. This inspires the idea of a bilingual Chinese–English dictionary that introduces the differences and similarities between Chinese and English lexical items in different aspects. This idea is briefly represented in Table 7 and may be worthy of further research, which needs larger corpus data support.

Table 7: A brief design of a contrastive valency entry of '转换' and 'change' as divalent verbs

转换 \square (divalent)	change \square (divalent)
+ NP: [Mind: idea, perception, attention, attitude, topic, focus, goal, etc.] [Pattern] [Direction or Location] etc.	+ NP: [Mind: idea, perception, attention, attitude, topic, focus, etc.] [Pattern] [Clothes] [Transportation Tools] [Direction, Location, Destination or Environment] [Currency] etc.
Note: <u>Semantic-Pragmatic Error</u> The objects of '转换' can be attitude, direction, topic, pattern or goal, not including environment: ※ 为了转换一下工作环境... In order to <u>change</u> working environment ... '改变' would be appropriate to govern the object 'environment'.	

4. A valency dictionary for foreign learners of the Chinese language

With the analysis in Section 3, different levels of lexical misuse emerge from the data. The question arises: how to help foreign learners of Chinese to avoid making such mistakes. The answer may partly lie in a valency dictionary that systematically provides syntactic-semantic-pragmatic information of words, which might enhance learners' language proficiency. This section first introduces the basic elements of a Chinese valency dictionary for foreign learners and then designs one valency entry with a brief profile of prospective users.

Similar to German and English valency dictionaries, the Chinese valency dictionary has three basic elements: quantitative valency, qualitative valency and valency patterns.

Quantitative valency relates to the 'number of complements required for the verb to occur in an acceptable sentence' (Herbst et al. 2004: x). The complement inventory incorporates both obligatory and optional complements. Another quantitative feature of the dictionary is that it introduces the concept of 'probabilistic valency' (Herbst et al. 2004; Liu 2009). Labels, such as *rare*, *freq.* and *very freq.*, are used to indicate the frequency of valency patterns based on the CCL corpus.

Qualitative valency describes the characteristics of complements. Both obligatory and optional complements' semantic roles and properties are elaborated. Optional complements are placed in parentheses '()' to be distinguished from obligatory complements. Furthermore, a 'Note' block is provided at the end of the entry to warn learners against the common valency errors that might be committed in encoding tasks.

Valency patterns specify the syntactic structure of the governing word and its complements. Patterns are displayed in the form of combinations of phrases or clauses, such as NP + ~ + NP, substantiated by concrete examples. Furthermore, those adjuncts that can help exemplify a complete sentence structure are also included and placed in angle brackets '< >'.
Taking *zhaolai* (招来) from Example 9 as the entry word, these three elements of a valency dictionary are organized as follows:

招来 zhāolái 动词

① 吸引、引来或引进 to employ, recruit, attract, solicit or call in

I. 价数 Maximum valency: (a) + b = 2

II. 语义角色 Semantic roles

a Agent b Patient

III. 语义成分 Semes

a [Human] [Entity] [Thought]

b [Human: worker, talented human resources, student, soldier, reader, investor, customer etc.] [Animal] [Entity: vehicle]

IV. 句法模式 Syntactic patterns

i. (NP) + ~ + NP (*very freq.*): 1879年他从世界各地~实验员。In 1879 he employed experimenters from all over the world. ◇ 你看你能~学生不? Do you think you are able to recruit prospective students? ◇ 新的运营模式~了很多顾客。The new business model attracted many customers. ◇ 军警迅速~一辆救护车。The military police quickly called in an ambulance.

ii. ~ + 的 + NP ('招来', when followed by structural auxiliary '的', becomes an *adj.* used to modify a NP; '招来' is the governor of NP): ~的朋友 ◇ ~的技术人员

iii. NP + 是 + <Prep N_{place}> + ~ + 的 (*rare*): 战士多数是<从农村>~的。Most soldiers were conscripted from the countryside.

iv. 把 + NP + ~ + 了 (*rare*): 把工人~了。We have employed the workers.

② 引起或招致 to incur or bring

I. 价数 Maximum valency: (a) + b = 2

II. 语义角色 Semantic roles

a Agent b Affected

III. 语义成分 Semes

a [Human] [Behaviour] [Thought]

b [Negative comments, emotions, attitudes, reactions etc.] [Unfavourable things] [Resistance]

IV. 句法模式 Syntactic patterns

i. (NP) + ~ + NP (*very freq.*): 广告~了一片异议。The advertisement stirred up objections. ◇ 项目的失败~了精英们的冷嘲热讽。The failure of the project has incurred sarcastic remarks. ◇ 要忍耐, 以免~祸患。Be patient to avoid disasters. ◇ 好名声也给他~了许多麻烦。Reputation also brought him troubles. ◇ 破坏绿林会~大自然的惩罚。Deforestation may incur punishment from nature. ◇ 军队因供给不足, ~了反攻。Due to the shortage of supply, our army suffered a counterattack.

ii. ~ + 的 + 是 + NP (*rare*) ('招来', when followed by structural auxiliary '的', becomes a *noun*; '招来' is the governor of the NP after the linking verb '是'): ~ 的则是一堆愤怒的谴责。What we met was a heap of condemnation.

③ 习语 idioms: ~挥去 to call in and send away sb. at will ◇ 从实~ to make a clean breast of everything

Note: Semantic-Pragmatic Error '招来' cannot govern objects with 'positive or favorable' meanings: ※ 流行歌曲招来人们的喜欢和支持。Popular songs attract people's fondness and support. '得到' would be appropriate.

Figure 3: A design of the valency entry

It should be noted that this design of a valency entry is an example based on the results of data analysis in Section 3. While the data analyzed is a limited range of sample concordance lines retrieved from the corpora, it cannot exhaust all the possible valency patterns. This Chinese valency dictionary in a bilingualized form is mainly intended for advanced foreign learners of the Chinese language. The dictionary can be used in the setting of classroom teaching and learning or in self-study. It is expected that learners use the dictionary to retrieve relevant information to write in a correct and idiomatic manner. It is also expected that learners read the 'Instructions to Users' and finish corresponding exercises in the front matter for the sake of efficient and effective use of the dictionary.

5. Conclusion

Lexical misuse occurs on different levels in foreign language acquisition and can be analyzed in terms of the three dimensions of the valency framework — logical-semantic, syntactic and semantic-pragmatic. Following the analysis, this study found that 85% of the cases of misuse involve semantic-pragmatic valency, 11.7% involve syntactic valency and only 3.3% involve logical-semantic valency. In addition, there are diverse factors responsible for lexical misuse in the semantic-pragmatic dimension, among which semantic collocation and contextual factors are most influential. Other pragmatic factors include emotive variables, text styles and registers. These cases of lexical misuse and analytical results discovered from authentic corpus material are largely lacking in treatment in popular Chinese learners' dictionaries, and thus need to be properly represented and foregrounded in CLDs. The study hence designed a valency entry that includes all these information types to aid foreign learners' acquisition of Chinese words.

There are four suggestions for further research on valency dictionaries and Chinese vocabulary learning. Firstly and primarily, in addition to verbs, it might be important to study the valency of other lexical classes such as nouns, adjectives, adverbs, prepositions, numerals and quantifiers so that the Chinese valency dictionary can provide comprehensive information concerning all classes of Chinese vocabulary. Secondly, pragmatic valency still has room for further studies. Most of previous valency studies focus on syntactic and semantic aspects. Although the present study found that various factors contribute to lexical misuse in semantic-pragmatic valency, they are not scrutinized completely and thoroughly and there might be other unknown pragmatic factors. Thirdly, as suggested in Section 3.4, the research project of a contrastive Chinese–English valency dictionary could be promoted to help learners discern lexical errors caused by interlingual transfer of valency structure. Finally, it is suggested that empirical studies be conducted to verify the usability of Chinese valency dictionaries. The feedback from user surveys may help improve the design and compilation of Chinese valency dictionaries.

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