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学　位　论　文

Electronic Dictionaries: A General Survey, Problems and Prospects

电子词典：综述、问题与展望

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CHAPTER FIVE: THE MACHINE TRANSLATION.

The Abbreviations Used in This Thesis:

AI: artificial intelligence

CAT: computer assisted translation

CD-R: CD-Recordable

CD-I: CD-Interactive

FAHQ: fully automatic high quality

HTML: hypertext markup language

M-O CD: Magneto-optic CD

MT: machine translation

P-C CD: Phase-change CD

TM: translation memory

Synopsis

The present thesis attempts to talk about a new member of the lexicographical family----the electronic dictionary. With the development of modern technologies, there emerges a new kind of reference work, the electronic dictionary, which is the combination of the many modern Hi-techs, such as the IT technology, the natural language processing technology, the AI technology, the CD technology etc..

This thesis is divided into five chapters, excluding a synopsis and a conclusion.

In chapter one, the author, borrowing ideas from domestic and foreign research results, re-defines what an electronic dictionary is. In the enlarged definition, the author points out that an electronic dictionary must contain three key points, in some way, the three key points can work as the criteria to test if an electronic product is a kind of electronic dictionary. Then the author, according to the definition, divides the electronic dictionary into five types, that is, the palm-top electronic dictionary, the CD-ROM dictionary, the online dictionary, the electronic encyclopedia, and the machine translation. Here, one important thing must be made clear that the first three types are classified mainly based on their carrying media, the fourth type is identified mainly from its dictionary proper, borrowing from the paper dictionary, and the last type, mainly from its function. So the classification is little different as regards to different types. Then the author roughly discusses the influence on the electronic dictionary as general on the traditional lexicography from ten aspects. At last, a brief historical development of the electronic dictionary in China has been mentioned.

In chapter two, the author talks about the palm-top electronic dictionary. In this type, several sub-types are sorted out. The general merits and demerits of this kind of electronic dictionary are also discussed. At the same time, some popular examples are cited, and their general functions are briefly analyzed. As the result of the functional analysis, the future development trends are predicted. Meanwhile, the writer presents some review criteria.

Chapter three deals with the CD-ROM and online dictionary. The short history, the status quo of the CD-ROM and the online dictionary are talked about. In this chapter, the author elaborates on the general features of the two kinds of electronic dictionary, including their general functions, interface structures, the interface and windows numbers and patterns, and the multimedia of the interface and windows. At last, the author foresees the future development trends.

Chapter four moves on to the electronic encyclopedia. In this part, the author dwells on the retrieval system of the electronic encyclopedia, which includes the retrieval entrance and the retrieval method, plus many supplementary retrieval

channels. The contrastive advantages of the electronic version over the paper version are also shown. At the end of this part, the author puts forward some review criteria and foresees the prospects of the electronic encyclopedia.

Chapter five expounds the MT (machine translation), a special kind of electronic dictionary. The reason why a MT system is called a type of electronic dictionary is that it is mainly considered from the functions it performs, which uses the computers to retrieve information from another language for people to refer to, the only difference from other electronic dictionaries is that it can not only translate a single word, but a whole sentence, and even an article. However, the essence is the same, using computers to get information from another language to meet the users' needs. What's more, the core part of all the MT systems is an electronic dictionary, often a general bilingual or multi-lingual electronic dictionary (in its narrow sense).

In this chapter, five important aspects are discussed, the short history of the MT, categories of the MT, the present status, the choice and the review of the MT, at last, the writer presents two developmental directions of the MT.

In the conclusion, the author restates the four achievements made in this thesis about the electronic dictionary: the enlarged definition of the electronic dictionary; the general analysis of all kinds of electronic dictionary; the review and the review criteria of the electronic dictionary respectively; the future development trends and suggestions for their future improvements.

Keywords: **electronic dictionary; functional analysis; review; review criteria; future development trends**

Chapter One: What is the Electronic Dictionary？

1.1 The definition of the electronic dictionary.

With the wide spread of the computer and the advancement of information processing technology, a new kind of dictionary----the electronic dictionary has made its appearance. Furthermore, there have been a lot of possibilities that the electronic dictionary will, in a way, replace the traditional paper dictionary because of its so many advantages that the paper dictionary can in no way catch up with. The electronic dictionary, as a newly-appearing reference book, has attracted a great attention from many fields, that is, from the lexicographers, from the lexicography researchers, from the end users, from the technicians, but what actually is an electronic dictionary? Let us look at the following definitions:

A type of reference work which utilizes computers and associated technology to present information on-screen. Examples include spelling checkers and thesauruses built into word processors, multi-volume dictionaries and encyclopedia on CD-ROM, multilingual terminological databanks and translation systems (e.g. EURODICAUTOM), research corpora, hypertext and the Internet. Further progress will depend on the price, compatibility and user-friendliness of products and the ability of compilers and publishers to satisfy the reference needs of specific users (Hartmann 2000: 47).

Other similar definitions:

A machine-readable dictionary is a version of dictionary which can be processed by or in a computer. Such dictionaries are used, e.g. in natural language processing, for purposes of semantic analysis and disambiguation, machine translation or the representation of knowledge (Hartmann 2000: 91).

An electronic dictionary is the kind of dictionary that is relative to the paper dictionary and that uses the electronic medium such as the computer as its carrying medium, and is a kind of machine-readable and information retrieval dictionary (Zhang Yihua, 1996).

From the above definitions we can conclude that there are several key points in deciding whether an electronic product is an electronic dictionary:

1) An electronic dictionary must be a kind of reference tool, that is to say, its very basic purpose is for users to consult it for some kind of information for their need.

2) An electronic dictionary must use the electronic technology, no matter whether it uses the technology to process information or use the computer as its carrying medium.

3) An electronic dictionary must present the retrieved information on the screen.

Only when an electronic product includes the above three key points can we say that it is an electronic dictionary. So an electronic dictionary is a kind of reference tool that uses the electronic technology to process or retrieve the information onto the screen.

1.2 Types of electronic dictionary

According to different kinds of classification criteria, we can divide the electronic dictionary into different categories. Taking the carrying medium as the classification criterion, we can divide the electronic dictionary into the chip-electronic dictionary, the CD-ROM dictionary, and the online dictionary. If we take the different functions and purposes into consideration, we will get two kinds of electronic dictionary: the electronic encyclopedia, and the machine translation (MT) or the translation software. This are the main types of the electronic dictionary, and, sometimes, many subtypes of the electronic dictionary can be further classified. Here we must be clear that many, especially in China, have used the term *electronic dictionary* to name all kinds of electronic dictionary. They use this term to refer to the online dictionary, to the CD-ROM dictionary, to the pocket dictionary. In a word, they use this term in a broad sense, any electronic product that complies with the three basic principles can be called the electronic dictionary though they are quite different from each other. In this thesis, the author attempts to use the term in a narrow sense, because each type of electronic dictionary has its own special characteristics and qualities, so we will try our best to avoid the ambiguous use of the broad term, trying to name every kind, to give each type a specific term in order to offer the people concerned with this field a clear idea.

1.3 The influences of the electronic dictionary on traditional lexicography.

The electronic dictionary appears with the advancement of modern technology, especially the IT technology, communication technology, natural language processing technology, and the associated electronic technologies. In this sense, we can say that the electronic dictionary is the by-product of the modern Hi-tech. The electronic dictionary is the natural product in the development of the paper dictionary. With the deepening study of the electronic dictionary, a new branch comes into being in the family of lexicography-----electronic lexicography or computer lexicography, and the development of electronic lexicography with the help of electronic communication technology has strongly influenced the traditional lexicography.

The electronic dictionary together with the electronic lexicography has had in the following aspects great impact on the traditional lexicographical theory and practice:

1) On the definition. A dictionary refers in its traditional sense to a kind of reference book that contains certain kind or kinds of information, which is arranged in a certain order for users to consult. In this definition we can see that a dictionary is a kind of paper product----- a book, in which information is presented in a concrete form. On the contrary, an electronic dictionary is, firstly, a kind of electronic product; secondly, the information is not presented in a concrete form but is stored in the hard disc of a computer, the silicon chip, or in a corpus. The carrying medium is quite different from the paper dictionary.

2) On the included subtypes and ranges of dictionaries. In the traditional lexicography, the dictionary and other reference books belong to different categories. Dictionaries, encyclopedias, almanacs, handbooks, yearbooks, chronicles, indices etc. vary from each other. The dictionary is mostly used in its narrow sense, e.g. referring to the monolingual language dictionary, a bilingual or multilingual language dictionary, mainly providing information of word forms, pronunciations, functions, usages, meanings, equivalents in another language, collocations and etymologies and so forth. The electronic dictionary, though called a *dictionary*, is greatly enlarged in the range of use. In other words, it is used in a greatly enlarged sense, which can refer to any electronic products on the condition that they meets the previously mentioned three criteria, including electronic encyclopedias, translation soft wares, CD-ROM dictionaries, online dictionaries, palm-top dictionaries, even some calculators.

3) On the compiling crafts, processes and methods. The compilation of a traditional dictionary is extremely strenuous, from the gathering of information to the end product, needing the lexicographer's painstaking efforts. At the stage of collecting materials, the lexicographers usually, from a sea of books, works, references, other dictionaries, first and second hand materials, take the proper information that may be put into the dictionary proper. In making an electronic dictionary, this stage is greatly shortened. With the help of databanks and corpora, lexicographers do not need to make information cards, which will cut the time into the shortest one. When compiling the entries, unlike the traditional method, the makers just take the necessary information from the corpora and arrange them in a proper way, so that the users can have direct access to the needed information. In the cooperation aspect, the proofreading stage, the publishing stage, and the selling mode also largely stray from the traditional patterns.

4) On the reading and retrieval mode. The traditional dictionaries have the information printed on sheets of papers, and when people want some kind of information, they have to turn the pages one by one, and the retrieval method is

largely put in alphabetical order, reverse order, etc… But in the electronic dictionary, the reading mode has changed completely. Once people use the mouse to click on the proper button to get the necessary information, the information will be presented on the screen instead of on the paper. In getting the information, users can use alphabetical order, reverse order, natural language, fragments, phrases, free combinations, questions, graphs, pictures, key words, time order, biographies, maps, etc…

5) On the personnel. In compiling the paper dictionary, the main makers are professional lexicographers, while in the electronic dictionary, besides the lexicographers, the technicians such as computer experts, programmers are badly needed. The lexicographers and all kinds of technicians will cooperate with each other in the whole process of compilation. The lexicographers will look upon the dictionary proper, and the technicians concerned will be responsible for the information representation, the designing of the dictionary structure, the hyper-links of related information, and the easy ways to retrieve the information. So the electronic dictionary is a product of joint efforts of experts, scholars, and technicians, and is no longer a lexicographer exclusive product.

6) On the representation modes. As mentioned above, the representation of information in the paper form is very exclusive, mainly the language description, and recently plus the color pictures, charts and graphs. In the electronic kind, manifestation is enriched a lot, except the traditional manners, the use of multimedia, such as synthesized sound and voice, music, cartoons, short or excerpt movies, we can say that in the electronic form the information can be manifested by all kinds of words description, pictures, all kinds of sounds and motion pictures.

7) On the carrying media. It is very clear that the carrying medium of paper dictionary is paper, whereas the carrying media of electronic dictionary are varied. It can use the hard disc of a single computer, a large computer center, the database or the corpus, the chip, the IC card, the CD-ROM, the floppy disc, and even the Internet.

8) On the concrete information a dictionary contains. The manifestation form, in a way, decides the information a dictionary will contain. The paper dictionary can only include the very basic information of a language. In the general language dictionary, for example, there are mostly the word forms, pronunciations, functions, usages, meanings, equivalents, collocations, etymologies, and sometimes illustrative examples and sometimes pictures and graphs. In the electronic dictionary, there is also plenty of multimedia information, and sometimes the information that a paper dictionary can rarely contain such as the homonym information, hyponym information and especially the multimedia information.

9) On the relationship with other reference tools. Taking the paper encyclopedia as an example, the traditional encyclopedia is just a kind of reference book that presents knowledge about the world, and sometimes it includes an almanac or year books. The electronic encyclopedia contains not only the knowledge the same as the paper ones contain, but as a rule some other kinds of reference books, such as a general monolingual, a bi- or multilingual dictionary. With the wide use and easy access to Internet, all kinds of links and hyperlinks have connected the single copy to a great number of other reference books, integrating them into a single copy and can be used at the same time.

10) On the revision and information upgrading. One of the biggest disadvantages of the paper dictionary is the lagging behind of the information. In the electronic dictionary, this problem has, to some extent, been overcome. From the compiling process we have known that compiling an electronic dictionary is quite different from the paper one: because all the information is stored in a corpus and the end product is stored in a computer, so it is easy to add, cancel, and revise some information. If it is an online or CD-ROM dictionary, the speed of information revision and upgrading is faster. The compilers are necessarily to put their end product onto the net only when all things has been done, they can compile the dictionary on the net, and even the users can take part in the compilation of some kind of dictionary (Yu Jian, 1996). As a result, all the electronic dictionaries have a high speed of information revision and upgrading.

1.4 Several points that should be made clear about the electronic dictionary.

Since there are so many similarities as well as differences between the paper dictionary and the electronic dictionary, we must clarify several points about the electronic dictionary:

1) An electronic dictionary is the combination of electronic technologies and traditional lexicographical theory and practice. But the essence of an electronic dictionary is a dictionary, the electronic technology being only a kind of assistant tool. The purpose of using the electronic technology is to enrich the manifestation forms and to facilitate the users to have direct accesses to the wanted information.

2) The very essence of an electronic dictionary is by no means the computerized version of a paper dictionary. It is a product that with the help of modern technologies has extended the lexicographical information manifestations.

3) The relationship of electronic dictionary and paper dictionary: the electronic dictionary is an improved form of the paper dictionary. Though, at the present stage, most of the electronic dictionaries are not based on the paper ones, we must realize that almost all the high quality electronic dictionaries take the excellent

paper versions as their basis, so the electronic dictionary is a kind of supplement to the paper dictionary, rather than a substitute for the printed ones.

1.5 A brief survey of the development of the electronic dictionary in China.

Initially, the electronic dictionary was the by-product of natural language processing and the machine translation researches, for the core part of the translation software is a machine readable bilingual electronic dictionary. In mainland China, relevant researches on electronic dictionary can be dated back to the 1950s from the early experiments of machine translation. Because of the domestic and international environments, in the 1960s, there was a stop on the research of this field. In the 1970s, such research again re-boomed and received great support from the government in the 1980s. In Taiwan, the research took an earlier start than in mainland, and some institutes have organized teams to study Chinese lexicon, focusing on Chinese machine readable dictionaries. In mainland China, the machine translation and the natural language processing are listed as the key research project in the National Development Plan of High and New Technology (named also 863 Plan). In the middle of 1990s, the *Intelligent English-Chinese Machine Translation System* was developed by the Computer Technology Research Institute of the Chinese Academy of Sciences incooperating with other institutes. This attracted a large amount of investment from a Hong Kong company named Group Sense Ltd, which is famous now for its *Instant Electronic Dictionary*. Thus the research on machine translation provoked a general interest in China scientific and technological circle, and a number of achievements have been made, such as the *Scientific Translation System 1* by the Academy of Military Science, the *Yixing English-Chinese Computerized Translation* and *Chinese-English & Chinese Japanese Machine Translation System* by the Head Office of China Software Corporation, as well as *TECM English –Chinese Machine Translation* by the Information Institute of Ministry of Railway. Afterwards, some college research institutes have made considerable successes in this domain. For instance, *Chinese-English MT System* by Harbin Polytechnic University; *E-RTV System* by Mid-China Science & Engineering University; *FDMT English- Chinese Translation System* by Fudan University. In terms of monolingual dictionaries, Beijing University, Qinghua University and the former Beijing Language Institute have developed the *Electronic Chinese Semantic Dictionary*, and the People's University succeeded in compiling the *Dictionary of Chinese Verbs* and *Dictionary of Modern Chinese Verbs*. Somewhat however, these research institutes failed to put their products onto the market with am exception of *Instant Electronic Dictionary*. Since 1994, a number of electronic dictionaries compiled and issued in Hong Kong and Taiwan have entered the mainland market, among them the most popular ones are *Yidianling Human Sound English-Chinese Dictionary* and *21 Century Multimedia English-Chinese Dictionary* by Taiwan BaseMicrosys Computer Co., Ltd, *Lexicomp Vocal English-Chinese Dictionary* and *Super Lexicomp* by Summit Computer Technology Co., Ltd, *Far East Illustrated English-Chinese Dictionary* and *Far East English-Chinese Encyclopedic Dictionary* by the Far East Book Company, *Oxford*

Advanced Learner's English Chinese Dictionary by Hong Kong Oxford Electronic Publishing House. The appearance of these electronic dictionaries has given a strong impetus to mainland software developers. They quickly followed the suit, and put out a series of electronic dictionaries in 1995, such as *Jishitong English-Chinese Dictionary*, *Yilin Online English-Chinese Dictionary*, *Langdao Dictionary and so forth*. They are the first generation of local electronic dictionaries in the mainland China, although their interface and included information are not adequate as desired. Anyway it is a good start.

Chapter Two: The Palm-top Electronic Dictionary.

2.1 Categories of the palm-top electronic dictionary

The electronic dictionary has a wide range of users, from students and teachers at different levels to various groups of staff members, translators, even some net workers. Different kinds of electronic dictionaries are required to meet the different demands of these different users. Every kind of electronic dictionary has its special uses, so are the subtypes of electronic dictionaries. As for the palm-top electronic dictionary, there are also different subtypes according to different classification criteria. According to the carrying medium, the palm-top electronic dictionary can be classified into the following groups: chip electronic dictionary, IC cards electronic dictionary. Those two are the *real* dictionary in the sense that people can get such information as word spellings, pronunciations, usages, etc. Some other kind of apparatuses are made by electronic technology and can present the information inside the apparatuses onto the screen and so can help people to get some kinds of information or just facilitate their works. We can also call them electronic dictionaries or electronic assistant. Such kinds of apparatuses include the popular palm-top calculators which can help people to get the exact results when calculating.

In marketplace, people tend to use the palm-top electronic dictionaries in its narrow sense, that is to say, they usually refer to the chip and IC cards electronic dictionaries. With regard to the kinds like the hand-held calculators, people tend to consider them as a different kind of electronic product, but here in this thesis, we would like to regard the calculators as a special kind of the palm-top electronic dictionary based on its functions and characters.

2.2 The general advantages of palm-top electronic dictionaries.

The advantages of palm-top electronic dictionaries are obvious. From the word palm-top we can get some hints about its merits. The general advantages of it can be roughly divided into the following three groups: the advantages of the product itself, the advantages of the basic information it contains, the function advantages and the overflow advantages. The advantages of the product itself are as follows: it is small in size, light to carry, and is portable for users to take from place to place. The price is reasonable, only a little higher than the hand-held calculators, so that it can be accepted by most users, especially the students, who are a very large group of consumers to this kind of electronic products. Also, because the electronic dictionaries use silicon chips, the capacity of information is very large, which can be several, tens, even hundreds of times that of the paper dictionaries.

The basic information it contains the following strong points: because the capacity of the dictionaries is out of question, which is a big hinder to the lexicographers when they want to include some more information which they think are helpful to the users into the paper dictionary proper, so the makers of the electronic dictionaries can contain any information that will be useful to the user, such as the etymological information that can only be seen in some large or unabridged dictionaries, but in the desktop, or pocket dictionaries, just because of the consideration of the space of the dictionaries, they are usually be cancelled on behalf of the length. So is the hyponymy information, polysemy information, homonymy information and sometimes even the antonym and synonymy information, which are very valuable in understanding and discriminating the word groups and in the practical use of the words and expressions in real contexts. In the electronic version those information can just be put into the dictionary.

The functional advantages of the dictionary: it is easy to retrieve information and in a comparatively shorter period of time. When searching information, say, the meaning of a word, in a electronic dictionary, you have to do is to keyboard the word into the search box, then the relevant information will be shown onto the screen. You do not need to turn the pages one by one, and look for the meanings between the very small characters, which will save you a lot of efforts. Almost all the electronic dictionaries have the functions of fuzzy input, fuzzy retrieval, fuzzy output, continuous searching, condition retrieval, combined conditions retrieval, asterisk wildcard retrieval etc., which will certainly facilitate the locating of the information.

The overflow advantages of the electronic dictionary refer to: we can just take two electronic dictionaries as example: *Kuaiyitong EC300* and *Legend Tianji Xiaoxin ⅡLN 850* (abbreviated as Legend). Those two dictionaries are typical palm-top electronic dictionaries, and the dictionary functions, that is, the consulting of the language information are the basic functions of the two. Yet, besides the dictionary functions, there are also other functions. In *EC300*, there is notebook function, in which you can store your phone numbers, make your appointments or schedules, store your curriculum schedules, and the conversion function between the lunar and solar calendar. In the calculation and conversion domain, you can perform simple math calculations, scientific calculations, unit conversions, currency conversions, and added value tax calculation etc... In the material domain, you can get Chinese knowledge, scientific knowledge, English idioms, chronologies, etc… There are also other overflow functions such as the games, including the chesses, cards etc. entertainment function, and intelligence development function. In the *Legend*, besides the dictionary function, there are visiting card function, individual financing function, curriculum schedules and alarm and calculation functions. There is also conversion function, in which you can conduct scientific, statistic calculation, scale, unit and exchange rate conversion, personal income tax and added value tax calculations; in the studying domain you can get vocabulary exercises, English dialogues, grammatical knowledge etc... Entertainment function, lain fallow function, reference

function and download function are as well very beneficial to the users. The functions mentioned above are the functions that are added to the electronic dictionaries, besides the language information you can get in the dictionaries, you can meanwhile obtain so many extra useful functions, and we call those extra functions overflow functions.

2.3 The general disadvantages of palm-top electronic dictionaries.

Though the advantages of the pocket electronic dictionaries are attractive, there are still disadvantages in the present popular electronic dictionaries. The major disadvantages are:

1) The output screen is relatively small in size, so the amount of information of output at one time is very limited, consequently in the palm-top electronic dictionary, there are generally no illustrative examples (Lin Shenqin, 1997).

2) Though the chip capacity has increased considerably, compared with the development of the IT technology, the capacity is still very small. As a result, at present, almost all the palm-top electronic dictionaries can only be made from some small-sized paper dictionaries (Lin Shenqin, 1997). Making full use of the electronic and other modern technologies in the old discipline----lexicography, in the future, even the palm-top electronic dictionaries can use large-sized paper dictionaries as its basis to make high quality electronic dictionaries.

3) The IC-cards palm-top electronic dictionaries have their own advantages. Every IC card belongs to a certain subject, so the vocabularies can, to some extent, be exhaustive, the senses and usages are comparatively more thoroughness. But, now, most of the IC cards palm-top electronic dictionaries have a very severe weak point in that the IC cards can not be compatible with other dictionaries, and that the cards of one dictionary can only be used on the this dictionary (Lin Shenqin,1997), if it is fitted into other types or brands of dictionaries, they will not work. This shortcoming must be overcome in the future.

4) There are little varieties of IC cards, in some IC-card dictionaries, the types of IC cards are only those of most common subjects such as the popular general language dictionary IC cards, as to other disciplines like architecture, metallurgy, veterinary medicine, optics and so forth, the users can no way find them in those dictionaries because, as a rule, each IC card is only concerned with one certain subject. In the future, the types of IC cards need to be enhanced in large numbers.

5) In the dictionary proper, here referring largely to the microstructure of the electronic dictionaries, the organization and structure of the information can not match that in the paper dictionaries. The senses are not arranged following certain orders, say, the frequency order, historical order or the logical order etc. most of

the electronic versions just enumerate all the senses in one column, which can positively hinder users from finding special senses quickly and easily.

6) In China, most of the palm-top electronic dictionaries are made mainly by technicians, in the technological aspect, the dictionaries can work well with their functions, though there still exists sort of gap to some of the foreign products. A dictionary is a kind of highly professional product, it can not be made perfectly and satisfactorily without the participation of professional lexicographers. The dictionaries made by technicians are good in technology, but the quality of the dictionary proper is far from satisfaction. In order to produce a great number of high quality electronic dictionaries, certain fields of experts should cooperate with each other.

2.4 Some examples of palm-top-electronic dictionaries and their functional analysis.

In order to deeply study all kinds of functions and to find the merits and demerits, some examples of pocket electronic dictionaries deserve to be surveyed intensively.

1) *Kuaiyitong EC300*. All the words, expressions included in this dictionary are more than190, 000. In the dictionary section, six kinds of dictionaries are contained, e.g. the English-Chinese dictionary, Chinese-English dictionary, Chinese dictionary, English-English dictionary, IT dictionary, and idiom dictionary. Because the functions in different dictionaries are almost the same, we, therefore, merely look at the functions in the English-Chinese dictionary. When you want to look up the equivalents of some English words in Chinese, you will first use the controlling button to turn on the English-Chinese function, then inputting the words you are not sure. In the common retrieval function, when inputting the words alphabetically, the screen will immediately show all the collocations with the input words as its key words, for example , if we input *good*, *good*, *good at*, *Good Book*, *good cheer*, *good day*, *good father* are also shown at the same time. If the input words have some grammatical information, on the upper right corner some hints will appear, and the push of the number-buttons from 1 to 6 will show the information of synonyms, antonyms, verb inflections, part of speech conversion and the changes and usages of adjectives. In the automatic rectification and nearest-words-shown function, when inputting some wrong spelling words, the dictionary will show the right ones or the nearest words alphabetically under certain instructions. For example, when inputting the word *closw*, and choosing the instruction of automatic rectification, the dictionary will show a collocation of words, for instance, *clog*, *clop*, *close*, *closed*, *closer* etc and then you can choose the right word to continue the searching. When choosing the nearest-words instruction, the dictionary will show the nearest words in alphabetical order. In the fuzzy retrieval function, you can use kinds of asterisk wildcard to substitute for one or more letters. The ? can replace one letter while the * can replace any number of letters. In the continuous searching function, you can keep on