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The Sino-Alphabet: The Assimilation of Roman Letters into the Chinese Writing System

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THE SINO-ALPHABET: THE ASSIMILATION OF ROMAN LETTERS INTO THE CHINESE WRITING SYSTEM¹

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0.0 Introduction

One of the most striking changes in written Chinese in recent years is the increasingly common use of the Roman alphabet in both loanwords and native coinages. To modern urbanites, vocabulary such as *MTV*, *PVC*, *kǎlā OK*, and *B xíng gānyán* are not exotica, but are the stuff of everyday life. The explosion of alphabetically-written lexical items is made possible by the systematic assimilation of the Roman alphabet into the standard repertoire of Chinese reader/writers, to create what I have called the "Sino-alphabet".

This paper explores both the formal structure and the function of the Sino-alphabet. Structurally, the Sino-alphabet represents the adaptation of the English alphabet to the Chinese system in terms of 1) discreteness and 2) directionality. Chinese characters (henceforth "Sinograms") are "discrete" in that each graph represents an independent chunk of phonological material, influenced very little by its neighbors. Roman letters, in contrast, are non-discrete because only in combination with other letters can they form meaningful units of speech. The use of Roman letters as fully discrete entities sets the Sino-alphabet apart from the Roman alphabet as used in other languages, and makes possible its assimilation into the Chinese writing system. In terms of directionality, the Sino-alphabet exhibits the full range of options that are present in Chinese: left-to-right,

¹ An earlier version of this paper was presented at the 22nd Annual International Conference on Sino-Tibetan Languages and Linguistics, in October, 1989 in Honolulu. This paper depends heavily on my unpublished UC Berkeley doctoral dissertation (Hansell 1989b). I am grateful for many helpful comments from James Matisoff, Charles Fillmore, Samuel H-N Cheung, Randy LaPolla, Robert Cheng, John DeFrancis, Robert Sanders, David Solnit, Robert Bauer, Victor Mair and Teri Takehiro. Any errors of fact or omission are not the responsibility of the above-mentioned people, and should be pointed out to me before I embarrass myself further. Visits to Taiwan to collect data were supported by Fulbright-Hays Doctoral Dissertation Grant #GOO-8640345 (1987) and a Carleton College Faculty Development Endowment grant from the Chiang Ching-kuo Foundation (1994).

top-to-bottom, and right-to-left; while the traditional Roman alphabet as used in the West never allows the right-to-left direction.

The main function of the Sino-alphabet has been the adaptation of graphic loans from English. Graphic borrowing has a long tradition in Chinese; for example, graphic loans from Japanese have contributed a great deal to the modern Chinese lexicon (e.g. 科學, 經濟, 幹部 and hundreds of others). The emergence of English as the main source of loan vocabulary, as well as schooling that has exposed the mass of the population to the Roman alphabet, laid the groundwork for graphic borrowing of English vocabulary. Increasing graphic borrowing solidified the position of the Sino-alphabet, which in turn made possible more borrowing. Now firmly established, the Sino-alphabet is available for other functions such as transliteration of foreign or dialectal sounds.

The adaptation of Roman letters into the Chinese system would seem to highlight the difference between alphabetic and morpho-syllabic types of writing systems. Yet it also shows that Roman letters are not inherently alphabetic, and can quite easily change type when borrowed. Throughout the history of writing, the creativity and flexibility of writers and readers have overcome radical structural differences between writing systems and between languages. The development of the Sino-alphabet is proof that the peculiar structure of the Chinese writing system presents no impediment to the internationalization of the Chinese language.

1.0 Background

Lexical borrowing is a powerful tool for expanding the lexicon of a language by adapting vocabulary from other languages. The two main borrowing strategies available to all languages are phonetic borrowing (in which native phonemes are substituted for similar-sounding phones in the source language, in order to replicate the sound of the borrowed word) and loan-translation or calquing (in which multimorphemic words are borrowed by stringing together native morphemes that are semantically similar to the constituent morphemes of the source-language expression) (see Weinreich 1968, Haugen 1950, Hansell 1989b). Since all spoken languages relate sound to meaning in their lexical items, all languages can create approximations of other languages' words, on the basis of phonetic similarity (of phonemes) or semantic similarity (of morphemes).

A third kind of lexical borrowing, graphic borrowing, is much more restricted. In graphic borrowing, the graphic form of the source-language word is reproduced as exactly as possible in the recipient language, and

read according to the pronunciation of the recipient language. The restrictions on graphic borrowing are obvious: both languages must be written languages, and both must share the same script. For instance, when English borrowed the name *Mexico* from Spanish (Bloomfield 1933), and Chinese borrowed 場合 from Japanese, the process was to simply take the original written form, ignore the source-language pronunciation ([mexiko] and *baai* respectively) and substitute the normal recipient-language pronunciations of such graphic sequences ([meksikow] and *chǎnghé* respectively). For English to borrow the written form 場合, or for Chinese to borrow a Japanese non-Kanji form like かしら, however, would be impossible, because the recipient language would have no native interpretation to apply to the source-language graphs.

Among languages with long literary histories, graphic borrowing is very common. English has borrowed from other alphabetically-written languages so promiscuously that its spelling system has become a nightmare. Chinese has been a source rather than a recipient of vocabulary for most of its history, but since the late 19th century it has received a huge influx of loans, especially of learned vocabulary from Japanese around the turn of the century, e.g. 科學 *kēxué* "science" from *kagaku*, 經濟 *jīngjì* "economics" from *kezai*, and even 幹部 *gànbù* "cadre" from *kanbu*, etc. (see Gao and Liu 1958, Mair 1992).

Since the end of World War II, English has far outdistanced Japanese as a source of new vocabulary in Chinese, especially in Taiwan (though China, after a late start, is catching up in this respect). One might expect that the rise of English would signal the wane of the graphic borrowing strategy, since there is no script shared by the two languages. To do so would be to underestimate the resourcefulness of Chinese speakers, who have managed to make maximum use of a limited amount of English competence, in a way that is well adapted to their own writing system. Thirty plus years of universal compulsory education that includes at least a smattering of English have ensured that the Roman alphabet is familiar to virtually all literate residents of Taiwan. The colonial legacy provides a solid base of English in Hong Kong and Singapore, and China's use of Pinyin in elementary education is the final brick in the wall of knowledge of the Roman alphabet in the Chinese-speaking world. This universal knowledge of the alphabet provides the opportunity for graphic borrowing from alphabetically written languages, notably English. In what follows, I will first explain how the Roman alphabet has been assimilated into the Chinese writing system and adapted to Chinese writing conventions. I will

then describe how this adapted system is used as a channel for lexical borrowing, as a transliteration system for interlinguistic and interdialectal loans, and as an auxiliary ordering system.

2.0 Assimilation of the Alphabet

2.1 Impediments to Assimilation

The different structures and functions of alphabetic vs. morpho-syllabic² writing systems make borrowing between them problematic. To make full use of an alphabet, one must at the very least have command of a set of graph-to-phone (reading) and phone-to-graph (spelling) conventions. Such sophisticated knowledge of English is well beyond the reach of most Chinese speakers, although the level of English competence among young people is steadily increasing. Since Chinese does not use alphabetic writing, there is no native system of graph-to-phone correspondences that can be used to interpret alphabetically written foreign vocabulary. These functional difficulties conspire against alphabetic writing as a channel of lexical borrowing into Chinese.

Major structural differences between the two writing systems also prevent ready assimilation of alphabetically written foreign lexical items into Chinese texts. In terms of interpretive strategies, alphabetic writing violates the most basic principle of Chinese writing, that of one graph = one syllable = one morpheme.³ In terms of graphic layout, Chinese allows more freedom of directionality, allowing right-to-left, left-to-right, and top-to-bottom order, while the Roman alphabet allows only the latter two.

2.2 Incentives Favoring Assimilation

² See DeFrancis (1984) for the rationale behind applying this label to the Chinese writing system. For more on the various types of writing systems and their characteristics, see DeFrancis (1989), Haas (1983), Sampson (1985), and Hansell (1989a).

³ Exceptions to this principle are: 1) the retroflex suffix 兒, which is a separate graph but is non-syllabic in speech; 2) multisyllabic morphemes like pútáo 'grape' and pípá 'Chinese lute', which almost invariably turn out to be loanwords; 3) very occasional combined graphs like 千瓦 qiānwǎ 'kilowatt', which is simply a combination of the existing graphs 千 qiān 'thousand' and 瓦 wǎ 'watt' (the latter of which is short for 瓦特 wǎtè "watt". Otherwise Chinese displays what Wang (1981) calls the "happy fit" between graphic and morphemic structure.

Despite these impediments to use of the alphabet in lexical borrowing, there are strong external pressures in favor of it. One such pressure is the prestige attached to foreign languages, and the implied cosmopolitan cachet of foreign language use. Alphabetic forms have a big advantage over calques and transliterations in this quest for linguistic prestige, since fully sinicized forms show no sign of foreign origin, while alphabetically-written forms are unmistakably marked as foreign.⁴ Another external pressure is the desire to avoid the inconvenience of translation in a trade-based economy. Manufacturers have discovered that many perfectly appropriate Chinese product names do not translate well, or if mistranslated may damage their products' chances of success in foreign markets.⁵ Rather than have foreign consumers look askance at a "Running Horse" bicycle, and to avoid having to translate a model name like 跑馬 *pǎo mǎ* appropriately into the scores of languages used in the countries where it is to be sold, a clever bicycle producer could save a lot of trouble by giving his product the totally arbitrary name "XG-1000", a designation which is easily interpretable, grammatical, and without negative connotations just about anywhere. This internationalization of Roman letters and Arabic numerals in product names is a two-way street; exporters of "XG-1000" bicycles are, at the same time, importing Yamaha DX-7 synthesizers, IBM PC's, and M&M candies (just to mention a few). A similar desire to avoid translation or transliteration exists in the area of science and technology, which contains many terms that use alphabetic letters asemantically, as acronyms or labels: for example, "hepatitis B", "X-chromosome", and "T-cell". These words cannot be calqued because the items designated by the capital letter have no obvious semantic content, and so cannot be related to any Chinese morphemes by semantic similarity. Yet transliteration of the whole lexical item is not desirable, because it would obscure the semantic connection to the already extant Chinese words for "hepatitis", "chromosome", and "cell".

⁴ This connection may be apparent rather than real, as in the case of *Q*, discussed below. Nevertheless, the choice of alphabetic rather than Chinese transliteration graphs can be considered a stylistic choice, based in part on the prestige of foreign written forms.

⁵ For an examination of some of the pitfalls of poor interlingual and intercultural product naming, see Aman (1982).

2.3 Structural Adaptations

Faced with practical incentives for alphabetic borrowing on the one hand, and structural impediments on the other hand, the speech community has evolved a compromise that allows borrowing of alphabetically written forms without disruption of the normal operation of the Chinese writing system. The letters of the alphabet have been assimilated into the Chinese writing system so thoroughly that no special rules need be learned in order to use them, creating what I call the Sino-alphabet.⁶ The assimilation of the alphabet has been accomplished by 1) making the individual graphs phonologically and graphically discrete, and 2) allowing free directionality.

2.3.1 Discreteness

Discreteness in this case means that adjacent graphs are not construed to have any special relationship to one another at the phonological level. Each graph is associated with a string of phonological material one or more syllables in length, and the boundaries between graphs map onto syllable boundaries. Discreteness is a characteristic of Sinographs in the Chinese writing system, with a few exceptions (as described in footnote 3 above). It is the quality of discreteness that makes the Chinese writing system uniquely adapted to use by a wide variety of different languages and dialects, and makes speakers of one Chinese dialect able to read words written in different dialects⁷: since graphs do not combine to represent combinations of sounds of a particular language, they may be used to represent the morphemes of any language, regardless of phonological structure. This is completely contrary to the alphabetic principle, whereby the individual graphs necessarily combine with adjacent graphs, according to the reading conventions and phonological rules of the particular language being written.

⁶ This term was first introduced in Hansell (1989a).

⁷ DeFrancis (1984) easily demolishes what he calls the "universality myth", the notion that a text written in Chinese characters can be read by any reader familiar with Chinese characters, even if reader and writer speak different languages or dialects. This lack of universality in connected text does not apply to individual characters, which are not affected by the interlingual differences in lexis, idiom, and syntax that make universality impossible.

The one area in which the letters of the alphabet are used discretely is in their citation forms, or their "names". Letter names are used in reciting the alphabet, oral spelling, acronyms, abbreviations, grading, labeling, etc. The phonological competence necessary to use a letter name is practically nil. For example: though an English speaker needs to have control of a complex set of rules, both spelling rules and phonological rules of the language, to be able to interpret the various instances of *c* in *call*, *ceiling*, *delicious*, and *cello*; no such knowledge is necessary for the *C* of *CBS* or *125cc*. In the latter examples, the only knowledge necessary is of the association between the graph and the phonological material /si/.

It is this discrete use of the Roman letters that Chinese speakers have borrowed wholesale into their writing system. Only the most basic knowledge is necessary for its use: visual recognition of the 26 graphs (actually 52 graphs, although from the examples it is clear that lower-case letters are seldom used in Sino-alphabetic borrowings), and knowledge of the 26 letter names that are associated with them in English. The graph-to-sound relationship is similar to that of Sinographs, so that except for the slightly peculiar shapes of the letters and their sometimes multisyllabic pronunciation, the learner's task is not much more complex than the learning of 26 new Sinographs.⁸ (This in a language where the average newspaper reader needs to know 2-3,000 characters.)

The sound associated with each letter is of course not identical to the English letter name, but is a phonetic loan from English that undergoes the usual phonetic distortion associated with the borrowing process. This is one reason that many of them are multisyllabic, even though most are monosyllabic in English. Since Mandarin (the language into which the letters are assimilated in the vast majority of cases) allows only [-n] and [-ŋ] as final consonants, consonant-final letter names usually end up disyllabic, e.g. [ɛfu] for *F*, [ejtɕi] for *H*, [ɛmu] for *M* etc. There is a continuum of pronunciation of the letters, with one extreme being total adaptation to the Mandarin sound system, the other extreme being pronunciation identical to the English. Since the determining factor seems to be the

⁸ One other major difference is that each Chinese character is associated with a morpheme, and is therefore meaningful. A letter of the Sino-alphabet has no such semantic content, but (as I pointed out in Hansell 1989a) the asemantic use of Sinographs (as "empty morphemes") is a well-established convention in the transliteration of loanwords, e.g. 布丁 *bùdīng* "pudding", where *bù* and *dīng* are used only for their sound, their meaning being "cancelled" (in the words of Godwin (1979)).

speaker's degree of knowledge of English, it would be interesting to examine systematically whether or not this variable is manipulated by speakers to claim educated or cosmopolitan status. One telling example of variant pronunciations of a letter occurring side-by-side comes from a Taiwan radio interview, where the interviewer (A) asked a movie star (B) whether there were any *NG* ("no good", an unsuccessful "take" in TV and movies) in the filming he was involved in:

A: yǒu méiyǒu *NG* [ən tɕi] ?
 have Neg have *NG*

"Were there any *NG*'s?"

B: *NG* [ən tɕi] hěn duō !
NG very many

"Lots of *NG*'s!"

Clearly A's pronunciation of the *N* in *NG* has been filtered through the Mandarin phonological system, while B's has not.

Since the alphabet exists in the Chinese writing system as discrete letters, direct graphic replication as a means of borrowing favors acronyms, abbreviations and other letter-name uses from English, and disfavors fully spelled words. Alphabetic loans complement the other main types of loans-- phonetic loans and calques. For instance, an English acronym like *CD* cannot be directly calqued: there is no semantic content that can be identified with the individual constituents *C* and *D*, therefore substitution of equivalent Chinese morphemes cannot take place. Phonetic borrowing is possible, but would require transliteration using arbitrarily chosen Sinographs that bear no semantic or graphic relation to the English model. The third option, graphic borrowing through the Sino-alphabet, ensures maximal phonetic and graphic fidelity to the original. In practice, an English acronym may be introduced into Chinese as either a transliteration or a graphic loan, depending on whether the borrowing was done by eye or by ear. In most cases, the Sino-alphabetic form will eventually win out.⁹

⁹ In practice, the borrowing of a word is not the result of a single encounter, but of many encounters, which may happen through different channels. Someone hearing the unfamiliar word *CD* in passing reference to a newfangled stereo may

The Sino-alphabet can handle discrete letter name sequences but not fully spelled English words, so acronyms are more "digestible". This contradicts the usual English practice of pronouncing acronyms as spelled words wherever possible (e.g. *BART*, *SAC*, *AIDS*). Adaptation of a borrowing from English can mean treating it as an acronym even if it is originally a fully spelled word. In at least two cases this is done deliberately in television commercials, where the brand names *Oak* (milk powder) and *Bic* (pens) are spoken as *O-A-K* and *B-I-C* respectively, rendering them in a form that can be processed by non-English speakers. An especially interesting case is *AIDS*, which in English originated as an acronym and has become common as a monosyllabic word [ejdz]. Predictably, the Chinese pronunciation of this graphically replicated loan is [ej aj ti esə], a form scarcely ever heard in English.¹⁰

2.3.2 Directionality

Directionality in writing is the other major difference between the Chinese and English writing systems that needs to be reconciled to complete the assimilation of the alphabet. English can only be written left to right and (rarely) top to bottom, while Chinese can be written top to bottom, left to right, and right to left (in decreasing order of frequency).¹¹ Of these three possible directions, right to left is crucial as the indicator of which types of alphabetically written forms are completely assimilated

have simply learned it as a phonetic loan *xidi*, which s/he might choose to transliterate as 西地 or 洗帝 or any other combination of characters with those sounds. But once our speaker sees the written form *CD* applied to the same item, all graphic ambiguity disappears and the written form is fixed. Extended over the entire speech community, this process ensures that whether individual speakers learn such an item through spoken or written channels, presence of the written form in the speech community practically guarantees eventual adaptation of the alphabetic form. The only counterexample I found was 西西 *xīxī* as a free variant of *cc* ('cubic centimeter'.)

¹⁰ The name of this disease has entered Chinese in at least three different forms, through three different loan processes: folk-etymological phonetic loan (after the acronym) *àizībìng* 'love' + 'thrive' + 'disease'; graphic replica (the above-mentioned *A-I-D-S*); and calque (on the English full phrase) *hòutiān miǎnyì quēfá zhènghòuqún* = 'acquired' + 'immune' + 'deficient' + 'syndrome'.

¹¹ Except in mainland China, where left to right is the overwhelmingly prevalent order and right to left has all but disappeared.

into the Chinese writing system, since a right to left string can never be construed as English. Of the right to left written forms that I have observed, all involve phonologically discrete uses of Roman letters. Spelled words never occur in right to left order. To illustrate:

- a) Double-sided sidewalk sign in front of restaurant:

one side: 卡拉OK "karaoke"

other side: KO拉卡

- b) Newspaper article on architecture (text runs vertically, caption runs horizontally):

text: I	photo caption: 厦大	MBI
B		
M		"IBM Building"
大		
厦		

- c) Newspaper article on drones (remotely piloted vehicles):

text: R	photo caption: VPR
P	
V	"RPV (remotely piloted vehicle)"

Roman letters appear in the right to left direction only when the letters are used discretely. It is interesting to contrast this with another constraint on directionality in Chinese: numbers written in traditional Chinese numerals can appear in any order, while those written in Arabic numerals are barred from right to left order. When numerical expressions appear in right to left texts, those written with Chinese numerals follow the right to left order within the numerical expression, while those written in Arabic numerals form a separate constituent, within which the internal directionality differs from the directionality of the matrix text. For example:

From newspaper headlines: (overall direction is R to L)

次	三	十	案	犯	少	至
cì	sān	shí	àn	fàn	shǎo	zhì
times	3	10	crime	commit	at least	

"Committed the crime at least 13 times"

算	預	比	26	用	動
suàn	yù	bǐ	26	yòng	dòng
budget	sum	26		use	

"Used 26 appropriated sums"

Clearly, in the former example the numerals 十 "ten" and 三 "three" are treated as discrete elements, like any other Sinographs, while in the latter example the 2 and the 6 are internal elements of the indivisible constituent 26. This is true even when the expression is simply a sequence of unrelated numbers, as in a phone number: an advertisement whose text is written right to left will still have the firm's telephone number written left to right in Arabic numerals. Ignoring top to bottom, which seems to be a neutral direction for any type of writing system, it is safe to say that Arabic numerals have an inherent left to right directionality in Chinese, while assimilated (discrete) uses of the Roman alphabet do not.

When a fully spelled word (a non-discrete use of the alphabet) is inserted into a right to left Chinese text, it is treated as a single constituent, just like the Arabic numerals in the example above. Occasionally complex combinations occur which illustrate multiple directionality, such as the nightclub sign reproduced below:

CLUB	代	年	60
(club)	dài	nián	60
(club)	decade		60

"60's Club"

The overall direction of writing is right to left, with 4 graphic constituents: 60, 年, 代, and CLUB. The first and fourth of these have an internal structure using left to right directionality:

overall direction
 <-----
 4 3 2 1
 | | | |
 | | | |
 CLUB代年 60
 ---> ->
 | |
 internal direction

Top-to-bottom is the traditionally prevalent direction for written Chinese, and except for mainland China it remains the most common order in newspapers and books. Sino-alphabetic forms are most commonly written one letter at a time, from top to bottom, just as the accompanying Sinographs are (see the examples "IBM" and "RPV" above). This can be aesthetically awkward, since Roman letters are often much narrower than the square Sinographs. Occasionally, especially in advertising, a short (two or three letter) Sino-alphabetic expression will be written horizontally within a vertical matrix. One example, from China (Victor Mair, p.c.):

BP
 机

"BP jī" (Mainland word for "pager, beeper")

Another example, from a classified ad in Taiwan:

ENG
 攝
 影

"ENG shèyǐng" ("Electronic News Gathering photography")

In cases such as these, the Sino-alphabetic expression is treated as an indivisible whole, just as were the Arabic numerical expressions discussed above.

Another way to cope with Roman letters in vertically written text is to rotate them 90 degrees and write them down the page sideways. While this technique is occasionally used with Sino-alphabetic expressions, it is always used with fully spelled (English) words, giving further evidence for

the fundamental difference between the discreet, Sino-alphabetic use of Roman letters, and their combinatory, English use. Note the contrast in orientation of letters in these two forms, taken from the same newspaper article:

R P V	Robot Weapon
-------------	-----------------

3.0 Functions of the Sino-alphabet

The Sino-alphabet got its start in lexical borrowing, and the majority of examples still illustrate its function in graphic borrowing, mostly from English. As it has gained acceptance, however, the Sino-alphabet has increasingly been applied creatively to other functions besides replication of foreign expressions. Although the alphabet also serves these same ancillary functions in the western languages (e.g. labeling, grading, letter-shape iconicity), individual expressions displaying these functions are often unique to Chinese¹², and thereby show the Sino-alphabet to be a living, highly productive part of the Chinese language.

3.1 Sino-alphabetic Borrowing

It is important to differentiate between arcane specialized vocabulary that is only used and understood by an elite group of highly educated (English speaking) specialists, and Sino-alphabetic loans that are a part of everyday life. Modern scientific and technical vocabulary is full of acronyms and alphabetic labels, but most of these impinge not at all on the consciousness of the average speaker. That Chinese language

¹² The Sino-alphabet is used throughout the Chinese-speaking world, and many Sino-alphabetic expressions are common to all the various regions, while others may be particular to a given region. Of the places I have personally observed (Taiwan and China), the Sino-alphabet is much more prevalent in Taiwan, and many of the items used in China appear to be borrowed from Taiwan or Hong Kong. The items cited in this paper are found in Taiwan unless otherwise specified, though most are also found elsewhere.

magazines for computer professionals or medical journals are full of alphabetically written items should surprise no one, but such an observation tells us little about the impact of the Roman alphabet on the speech community as a whole. On the other hand, there are many Sino-alphabetic loans that are part of the vocabulary of everyday life. These words are widely used, in both the spoken and the written language, by speakers who do not necessarily have any specialized education or proficiency in English. For example:

DDT	"DDT"
T-xù	"T-shirt"
IQ	"IQ"
MTV	"music video; video-viewing coffee shop; Music Television cable TV network"
X-guāng	"X-ray"
PVC	"polyvinyl chloride"

These words are not only common, but in many cases there is no "purely Chinese" synonym available to compete with the Sino-alphabetic form.

In the examples that follow, I will avoid technical vocabulary as much as possible. Every example will be one that can be heard in the conversation of non-specialists or seen in a medium of general interest (newspaper, TV, radio, advertisements for common consumer items). None of them appeared in any context where a non-Chinese speaker was the intended addressee. These lexical items may not look Chinese, but they are indeed thoroughly Chinese.

3.1.1 Purely Alphabetic Loans

Purely alphabetic borrowings are lexical borrowings that are written exclusively with Roman letters. They are almost all acronyms, since acronyms are most likely to use letter names in English, and are most adaptable to the Chinese use of the alphabet.

Probably the largest group of purely alphabetic borrowings is the class of organization names. These include alternate names for countries (*USA, ROC*), government agencies (*CIA, FDA, EPA*), non-governmental associations (*NBA, UL*) and corporations (*IBM, BMW, ICI, NEC*). Corporations with acronymic names seem to prefer direct graphic replication as a way of minimally "sinicizing" their names, undoubtedly to cash in on the cachet of foreignness that attaches to a product without a thoroughly Chinese name. This applies to Japanese corporations as well. Firms like *JVC, NHK*, and *NEC* use graphic loans of their English acronyms, rather than using graphic loans of their Japanese (kanji) names. Since advertisements and product labels do not gloss the corporation name, many speakers who are familiar with the acronymic names have no idea what the original full name of the company is, either in the original language or in Chinese. (For that matter, how many Americans know what *BMW* or *DHL* stand for?) Even though there is a Chinese long form for *IBM*, (*guójì shāngyè jīqì gōngsī* a calque on "International Business Machine Company"), a Chinese businessman reported that when he gave this company name to Directory Assistance in Taipei, he was told that there was no such listing. Changing his request, he asked for the number of "*IBM*" instead, and was immediately given the information.

Another area of vocabulary showing a high incidence of purely alphabetic borrowings is science, technology and industry (as in *IBM* above). Scientific vocabulary in areas that impinge on the public consciousness can get picked up by the general lexicon, as in the case of *AIDS, AZT, HTLV-I* etc. In Taiwan, *IQ* is an item that has lost any connotation of educational or psychological jargon: *tādeIQ bùgāo* "His IQ is not very high" is a perfectly acceptable, colloquial way to say "He's a little slow." Technology that becomes consumer-oriented also brings in a share of vocabulary, and often, as in the case of corporation names, knowledge of the origin of the term is irrelevant. For instance, many video shops will rent you a small video camera known as an *ENG*, and credits at the end of TV shows may credit the *ENG xiǎozǔ* ("ENG group"), yet very few of the people using this word know that the original English is *Electronic News Gathering*.

Industrial and trade practices and products that originated in the West contain much specialized technical vocabulary that is alphabetically rendered. Due to the local conditions in Taiwan, with the particular types of industries that predominate and the trade-based economy, items that are normally rendered acronymically in English only by specialists are used as alphabetic loans by non-specialists. For example, the enormous

Taiwan plastics industry is the impetus for a high degree of sophistication about polymers in the average consumer, who wants to be told on the label whether the product s/he is buying is made of *PE*, *PP*, or *PU* ("polyethylene", "polypropylene", or "polyurethane" respectively.) Similarly, the orientation of the economy towards trade and manufacture for export encourages the spread of items like *LC* "letter of credit" and *QC* "quality control".

Popular culture and show business is another arena where alphabetic borrowing has occurred. *MTV* (from the U.S. cable network of the same name that shows rock videos) has become the term for the recent mass entertainment genre, the music video. *NG* (from "No Good") and *OK* are the terms for unsuccessful and successful takes in movie and TV filming. (*NG* occurs only in this context, while *OK* has a wide range of uses.)

All of the above examples are discrete uses of the alphabet, which for reasons already touched on facilitate the adaptation of lexical items by graphic borrowing. One exception to this trend is *MIDI* ("Musical Instrument Digital Interface"), a technical term among musicians and recording engineers. Presumably the elite nature of the in-group that uses this term exerts a pressure in favor of retaining the English spelled-word pronunciation [mɪdi], preventing its analysis into discreet letters as happened in the case of *AIDS*.

3.1.2 Alphabetic-Chinese Blends

Lexical items that are written as a blend of Roman and Chinese graphs are more numerous than purely alphabetic borrowings. These items, a great many of which have no non-alphabetic synonyms, provide the best argument for the total assimilation of the Roman alphabet into the Chinese writing system. They also represent an interesting type of borrowing midway between a loanblend and a calque that eludes precise classification under the systems of Weinreich (1968) and Haugen (1950). For instance, compare the following types of borrowings:

- | | | | |
|----|---|---------------------------------|--------|
| a) | LOANBLEND
(phonetic loan
+ native morpheme) | tǎnkè chē
'tank' + 'vehicle' | "tank" |
|----|---|---------------------------------|--------|

- | | | | |
|----|---|-------------------------|-----------|
| b) | CALQUE
(combination of
native morphemes) | règǒu
'hot'+ 'dog' | "hot dog" |
| c) | ALPHABETIC BLEND
(Sino-alphabetic
letter + native
morphemes) | T xìbāo
'T' + 'cell' | "T cell" |

Example a) is a blend of the native morpheme *chē* "vehicle" with a phonetic loan from English. Substitution of Chinese syllables, chosen on the basis of phonetic similarity, is responsible for the rendering of *tank* as *tǎnkè*. The characters used to represent these phonetic values are used as semantically empty transliteration characters. In b), Chinese morphemes are substituted for English ones, on the basis of semantic similarity, as is generally the case with calques. It is the level of linguistic structure at which substitution takes place that differentiate these two types of loan. Clearly c) belongs to neither type.

In c), substitution occurs directly at the graphic level, with phonetic similarity as a by-product and semantic similarity irrelevant. Unlike *tǎnkè* in a), *T* in c) is chosen not because it sounds like the English model (although it does), but rather because it looks like the English model. In a) there are various different sequences of characters that could transliterate "tank" and produce an equally acceptable loanblend. Ignoring tone (as is the usual practice in Mandarin phonetic loans), there are at least 30 Sinographs with the phonetic value *tan*, and 32 with the phonetic value *ke*, giving 960 possible written forms for the first constituent of "tank". No such latitude is available for c). There is no question of replacing the *T* with any of the 36 Sinographs pronounced *ti*. The phonetic similarity between the first syllable of the English model and the Chinese replica is not a coincidence, but neither is it the basis for substitution. The phonetic similarity is an indirect result of the Chinese borrowing of English letter names along with the graph, followed by the graphic replication of the letter *T* in this particular lexical item.

Example c) is not a calque either, because substitution cannot proceed on a semantic basis since there is no definable semantic content to the individual "morph" *T*. Unlike b), where *rè* means "hot" and *gǒu* means "dog" in isolation, *T* has no independent meaning until it is associated with a particular item through a labeling process. In English the *T* has an

indirect connection to the semantically contentful *thymus* for which it is the abbreviation, but in Chinese there is no connection between *T* and *thymus*, and therefore no semantic basis for identification of the English *T* with the *T* in the Chinese version. The only basis for associating them with each other is graphic identity.

Many alphabetic blends are technical or scientific terms in which the English alphabetic element is used strictly as an asemantic label to differentiate between a finite group of items. Examples include:

A/B xíng gānyán A/B form liver infection	"hepatitis A/B"
X/Y rǎn sè tǐ X/Y stain color body	"X/Y chromosome"
wéi tā mìng (A/B/C etc.) support 3rd Person life	"vitamin (A/B/C etc.)" A/B/C etc.

(Note that in the first two the non-alphabetic component is a calque or near-calque based on the Greek roots that constitute the English word. In the third, it is a folk-etymologized phonetic loan.) The alphabetic labels for vitamins are analogous to another series that is technical vocabulary in a different semantic field, that of musical keys (A-G). These are rendered into Chinese as blends, of the form *A-G diào*, where *diào* means "melody, key". Further distinction is made using a calque on the usual Western designation of major vs. minor, i.e. differentiating the modes according to a size metaphor, with *dà diào* ("big"+"key") for "major" and *xiǎo diào* ("small"+"key") for "minor".

In other cases, the alphabetic element may be an acronym or abbreviation that has indirect semantic content in English, but none in Chinese. The case of *T xībào* "T-cell", where *T* stands for *thymus* was mentioned above. An example of an abbreviation is *Rh xǔe* "Rhesus negative blood" (with semantic marking reversal)¹³. In both these items,

¹³ Since my blood is Rh negative, I was very surprised to hear technicians at the Taiwan University Hospital refer to it as *Rh xǔe*, literally "Rh blood". The semantic marking reversal didn't make sense until I discovered that 99.6% of the Chinese population has Rh positive blood. *Rh xǔe* should not be construed as "blood with Rh", but rather as "blood that is unusual with respect to Rh".

the non-alphabetic element is a native Chinese word, *xìbāo* "cell" and *xǔe* "blood" respectively.

In the non-scientific realm, examples are rarer, though one such example is *X-jí piàn* "X-rated movie". Significantly, none of the other letters used in the U.S. film rating system have made the leap into Chinese, suggesting that *X* rated movies have a salience that other movies do not. Another blend in the realm of popular culture is *T xù* "T-shirt", (from Cantonese)¹⁴.

A narrowly defined area of the lexicon that makes extensive use of the Sino-alphabet is the designation of (mainly military) aircraft, vehicles and other equipment. Most of these names combine letters and numbers, the numbers being written using Chinese numerals rather than the Arabic numerals of the English model. Some examples from newspaper articles (syllables rendered in Pinyin were in Sinographs in the original):

DC shí	"DC-10"
F wǔ E	"F-5E" (fighter plane)
S qī líng C	"S-70C" (helicopter)
M yī yī sān	"M113" (armored car)
M shí liù	"M-16" (assault rifle)
SS èrshí	"SS-20" (Russian ICBM)

There is a nearly endless supply of such items which may make their appearance in the news from time to time, though a few are widely known because they are more familiar objects (many travelers fly on DC-10's), or because they are in the news.

¹⁴ Victor Mair (p.c.) points out that *T xù* is often pronounced *dīngxù* in China, substituting the visually similar Sinograph *dīng* 丁 for *T*. These two graphs are not only translational equivalents (see "T-bone steak" in section 3.3.4.), but are used interchangeably in Chinese when representing a shape: in the Cihai (1989) entry for "*T zìbù*" (a type of cloth directional marker used at airfields), and older alternate form "*dīngzìbù*" is cited.

3.2 Transliteration of Non-Western Items

Further evidence of the integration of the alphabet into the Chinese writing system is the use of Sino-alphabetic letters as *jiǎjiè* or "phonetic loan" characters for words of non-Western origin. Although such uses are rare, and tend to occur only when there is no closer Mandarin equivalent for the sound to be represented, they show that there is no necessary connection between the letters and the Western languages.¹⁵ Such uses are creative exploitation of the graphic resources available to the Chinese language, not imitations of or transfers from Western usage.

By far the best established of the Sino-alphabetic transliterations is *Q*, used to represent the Taiwanese word *khiu* [k^hjū] "springy, firm". This word has no Mandarin cognate and no available character in the written language. It has been borrowed into the area of the Mandarin lexicon dealing with food, to mean "possessing a pleasing, non-mushy texture". It can be heard in conversation, on TV commercials, and seen as below:

- a) headline of small newspaper article:

xīn zhǒng mǐ xiāng QQ
new variety rice fragrant firm

"New rice variety, fragrant and firm"

- b) on package of sweet potato candy:

xiāng Q, kěkǒu
fragrant firm, tasty

"Fragrant, firm and tasty"

- c) name of Gummi Bears candy (with adjectival reduplication) :

¹⁵ Bauer (1982) describes a similar example in Hong Kong Cantonese, where the morpheme represented by the Roman letter is a native grammatical morpheme. Sino-alphabetic borrowing is also quite common in Hong Kong, for examples, see Chan and Kwok (1982, 1986).

QQ xióng
 QQ bear

In fact the name *QQ xióng* in c) is ambiguous, because of the recent innovation in teenage slang of *Q* to represent the English loanword *cute*. Thus "QQ Bears" could mean either "gummy/chewy bears" or "cute bears", or even (all the more felicitously for the admen and their clients), both. The use of *Q* to transliterate *cute* adheres to the spirit of, if not quite the letter of, the phenomenon being described in this section. Although the word being transcribed is not non-Western, it certainly bears no relationship in its English written form to the Sino-alphabetic form used to transcribe it. Once the graphs have become Chinese, the mechanism used to apply them to borrowed forms may be entirely Chinese, regardless of the spelling rules of the language of origin.

Another very common lexical item involving Sino-alphabetic transcription of a non-western item is *kǎlā OK* "karaoke". This word began life as a Japanese loanword blend: J. 空 *kara* "empty", and オーケストラ *ookesutora* "orchestra", meaning that the orchestra is on the tape, but the tape is empty of the human voice, to be supplied by the patron. *Ookesutora* was clipped to *oke*, (the loss of the long vowel is puzzling), and the whole compound word is written in *katakana* as カラオケ *karaoke*. When borrowed into Mandarin, the first two syllables were transliterated using semantically empty Sinographs, and the latter two with Roman letters. Undoubtedly this is not a pure case of Sino-alphabetic transcription, but is influenced by folk etymology, given the existence of *OK* firmly entrenched in the loan lexicon. But again, this is independent use of *OK* to transcribe material that is not English in origin. In a further independent development, *kǎlā OK* has recently been clipped to a single *K* and combined with *TV* to produce *KTV*, a word which refers to the latest innovation in entertainment technology, video karaoke.

Novelists also make use of the alphabet to transcribe non-Mandarin names, partially circumventing the problem of how to graphically represent foreign language sounds in a written language that does not permit novel phonetic combinations. Two examples: 他^K *tā K* (perhaps from Japanese 竹^{take}), the name of a Japanese gangster in Huang Fan's *Fanduizhe*; and *VV*, used to represent the pronunciation of a person's given name 偉偉 *wěiwěi* in an unnamed Chinese dialect (Shanghainese?) in Jiang Xiaoyun's short story "Xian Meng".

3.3 Ancillary Functions

3.3.1 Abstract Labels

There are ancillary functions of the alphabet in the West that do not involve representation of phonological material in order to spell out words, and assimilation of the alphabet provides the ability to make creative use of these functions. One example is labeling, using letters of the alphabet as arbitrary abstract markers to differentiate within a class of similar objects, such as the case of *vitamin C*, *vitamin E* etc. in English. Many examples of Chinese borrowing of alphabetic labels from English are cited above, however none of them involve creative use of the labeling process. In English, *vitamin C* is the label applied to ascorbic acid, and *vitamin E* applied to tocopherol. Since Chinese *wéitāmǐng C* and *wéitāmǐng E* are replicas of the English models, the referent of each item remains matched to the same alphabetic label through the borrowing process, and the referential connection between ascorbic acid and *C* on the one hand and tocopherol and *E* on the other survives across the language boundary.

A truly creative use of alphabetic labels would be if the Chinese chose to refer to ascorbic acid as *wéitāmǐng E* and tocopherol as *wéitāmǐng C*. Such a designation would be neither more nor less arbitrary than the English designations, but would be impractical because it would increase the burden on language learners, translators, etc. Under the present system, speakers of either language need learn only one new morpheme in order to gain access to the names of a whole class of chemical compounds. Once a Chinese student of English knows how to say "vitamin", s/he automatically also knows how to say "vitamin A", "vitamin B", "vitamin C", etc. Excess creativity would destroy this advantage. Creative labeling suffers no such disadvantage, however, when applied to referents that have no alphabetic label in another language, i.e. homegrown coinage.¹⁶ Letters can be used in addresses (to differentiate different apartments or offices on the same floor of a large building). Since each address is unique, there is no possibility of such an expression being borrowed, it can only be a creative use of a borrowed labeling convention. Many small restaurants also label their lunch or dinner specials *A cān* (A + "meal"), *B cān* (B + "meal") etc. Even though Restaurant X may have a Chicken Leg *A cān* and a

¹⁶ Two interesting creative uses of labeling "vitamins" are the Hong Kong slang expression *wéitāmǐng M* 'Vitamin M' meaning "money", and *wéitāmǐng B* 'Vitamin B', meaning "boyfriend" among Taiwan teenyboppers.

Pork Chop *B cān*, there's nothing to stop Restaurant Y across the street from having a Pork Chop *A cān* and a Fried Rice *B cān*.¹⁷

3.3.2 Grading

Perhaps the only inherent "semantic" content in the alphabet is the metaphorical connection between precedence in alphabetical order and precedence along other dimensions. This grading function is most visible in English in school grades, where *A* is best, *B* is second best, etc. This function of the alphabet has also been borrowed into Chinese, one example is a newspaper report of a survey of computer input systems for Chinese characters, where each system was graded *A* through *F*. Lexical compounds based on grading have also been created, for instance in sound and video recording, *A* is used to label a copy made directly from the master, while *B* labels one made from a copy of the master (a 2nd generation copy):

records:

A bǎn	"A print"	(a record printed off a locally produced master)
B bǎn	"B print"	(a record printed off a copy of a master of a foreign record)

videos:

A kǎo ¹⁸	"A copy"	(videotape copied from master tape)
B kǎo	"B copy"	(videotape copied from copy of master)

3.3.3 Cryptonyms

Another ancillary function of the alphabet that Chinese has adopted is use of initials as cryptonyms. Fiction, essays, magazine articles and

¹⁷ In most contexts, *ABC* etc. have replaced the traditional ordered labeling system of the ten Heavenly Stems *jiǎ, yǐ, bǐng*, etc. in Taiwan. In China the traditional system is much more frequently used.

¹⁸ *kǎo* is from *kǎobèi*, a phonetic loan based on English "copy".

occasional news reports all can be found that make use of alphabetic initials of romanized Chinese or foreign names. For example:

T shì	"T city" (for 'Taipei')
B shì	"B city" (for 'Beijing')
C dà	"C Univ." (for 'Columbia')
S pǐnpái	"S Brand" (for 'Suntory')

Each of the above is a "translucent" cryptonym, one that is "fictionalized" but recoverable for at least a segment of the population (those that know the foreign names or romanization conventions).¹⁹ These forms are not necessarily created in a wholly Chinese context, since they may require knowledge of the use of alphabetic forms in another language or writing system (romanization), but they are still creative native uses of the alphabet, not replicas of any foreign model. Totally opaque cryptonyms are not meant to have any connection with the actual original name, and therefore require no special foreign language competence. For example, A *xiānsheng* "Mr. A", an AIDS carrier who appeared in disguise for TV and press interviews, undoubtedly chose that alphabetic designation because the romanization of his surname did NOT begin with A (perhaps it was chosen from the first letter of *AIDS*?)

3.3.4 Letter Shape Iconicity

The naming of objects based on iconic similarity between their shapes and the shapes of graphs is common to both English and Chinese, e.g. *C-clamp*, *O-ring*, *A-line dress* etc. and *dīnggǔ niúpái* ("dīng" + "bone" + "steak") "T-bone steak", *shízì lùkǒu* ("shí" + "character" + "intersection") "crossroad, intersection", etc. (where the bone is shaped like the character

¹⁹ In *B shì* for *Beijing* the choice of initial is based on the Pinyin romanization, which is not used in Taiwan. Therefore to understand the reference, a Taiwan reader must be familiar with Mainland romanization practices. With widespread use of Pinyin, alphabetic cryptonyms have become particularly common among novelists in China, but the practice predates Pinyin by decades. Perhaps the most famous example is Lu Xun's "Ah Q".

dīng 丁 and the intersection is shaped like the character *shí* 十 respectively.) The Sino-alphabet brings the addition of a new set of graphs, with new shapes, to the Chinese system, allowing for greater expressive possibilities. Some shape iconic forms may be borrowed from English forms, like *V líng máoyī* (V + "collar" + "sweater") "V-neck sweater". Others are unmistakably local creative uses of this function, e.g. *S xíng wānzhēng* (S + "model" + "curved" + "zither") "figure S wanzheng" to describe a type of traditional Chinese instrument (in an advertisement), or *U xíng* "U shaped" to describe an ancient Chinese bronze (in a magazine article). Such powerful expressive tools have become indispensable, even in such linguistically conservative settings as dictionaries: as part of the Cihai (1989)²⁰ definition of *U xíng dàn* (U + "shape" + "bullet"), it is described as having a *L xíng dānké* (L + "shape" + "casing")!

3.3.5 Others

One ancillary function of the alphabet that Chinese has acquired is so straightforward as to require no discussion, that is the use of *a* and *b* and *x* and *y* in mathematics. There are undoubtedly other functions that I have not touched upon. Suffice it to say that there is no reason that any of the many ancillary functions the alphabet performs in alphabetically written languages should not be found in Chinese.

4.0 Conclusion

The Sino-alphabet is an adaptation of the Roman alphabet to the Chinese speech community's idea of what a writing system should be. Though its graphic form is undeniably Roman, and the phonetic values attached to its graphs are based on English, in terms of structure and function it is completely integrated into the Chinese writing system. Indeed, the Sino-alphabet is not an alphabet at all; in terms of graph-to-sound relationships it functions completely non-alphabetically, just as Chinese does.

²⁰ The Cihai is one of the few Chinese dictionaries that includes a small list of Sino-alphabetic items. It is ironic that China, where the Sino-alphabet is least established, is the only place in which dictionaries take notice of it. This could be due to the influence of stodgier lexicographers elsewhere. Another possibility is that in more cosmopolitan places that make much greater use of truly foreign vocabulary, Sino-alphabetic expressions are mistakenly identified with foreign words that do not belong in a Chinese dictionary.

The Sino-alphabet originated in lexical borrowing, but has since taken on a life of its own, and is creatively applied to many novel, native lexical items. The original adaptation of the Roman alphabet to Chinese was motivated by a quality that the Roman script **has**: its interlingual flexibility, the fact that it is the most widely used script in the world. In many of the functions that the Sino-alphabet has acquired, it is just as important for what it **lacks**: semantic content, as compared to Sinographs. The many readers and writers of Chinese who have created the Sino-alphabet have carefully exploited various useful characteristics of the Roman script as a script, while avoiding the complexities of using it as an alphabet. The result is an auxiliary system that plugs in perfectly to the existing Chinese morpho-syllabic system without disturbing it in the least.

Many scholars have observed that writing systems often undergo fundamental changes when they are borrowed from one language into another²¹. The development of Sinographs into the Japanese *kana* syllabaries, or of the consonantal Phoenician system into the Greek alphabet show that a writing system can change its "basic structure" when adapting to the needs of a new, previously unwritten language. In these cases, what Coulmas (1989) calls the "inner form" of the writing system (its structured relationship to spoken language) is adapted to the needs of the new language, and the "outer form" (the purely graphic component) may undergo changes as well. The Sino-alphabet offers a somewhat different case, where the borrower is not an unwritten language, but rather a well-established writing system. Here the outer form is preserved intact, while the inner form is totally abandoned in favor of the matrix system.

There seems to be no end of argument about the classification of writing systems, for instance, whether Semitic writing systems are syllabic (Gelb 1963) or consonantal (Sampson 1985); or whether Chinese is logographic (Sampson, Gelb, and many others) or morpho-syllabic (DeFrancis 1984) or even syllabic (DeFrancis 1989). Often the arguments on either side are muddled by failure to differentiate script from writing system, that is, outer from inner form. The Sino-alphabet demonstrates in the clearest possible terms that two languages can share an identical script, and yet use it in utterly different ways, as part of an entirely different writing system. The Chinese soul behind its Western-looking face reminds us that ordinary users of language, exercising their creativity and intelligence, are capable of creating novel solutions to the knottiest of structural problems in language.

²¹ Gelb (1963), Sampson (1985), and Coulmas (1989), to mention just a few.

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