

**BETWEEN GLOBALIZATION AND INDIGENIZATION:
ON TAIWAN'S PINYIN ISSUE FROM THE PERSPECTIVES OF THE NEW ECONOMY***

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Abstract

The only remaining controversy in Taiwan's efforts to standardize its pinyin system for Chinese is whether to adopt Tongyong or Hanyu; while the former has an intense symbolic value of indigenization, the latter enjoys a substantial globalized distribution. This paper first makes clear the nature of 'interface' of any pinyin system and examines this seemingly domestic issue from the perspectives of the New Economy in the global Information Age. Given the characteristics of 'increasing returns' and 'path-dependence', Hanyu Pinyin, with its universal standardization and dominant global market share, is the obvious choice. Taiwan's implementation of Tongyong Pinyin must necessarily incur the cost of dual interfaces. Given the 85% overlap between the two systems, Tongyong, as a politically meaningful symbol, ironically, also creates a division among Taiwan's population. The unfortunate politicization of the pinyin issue has cornered the nation into a dilemma: Tongyong costs economically, Hanyu costs politically. The ultimate reconciliation thus hinges upon the implementation of a system that optimizes Tongyong's indigenized symbolic value and Hanyu's globalized substance, to the furthest extent possible.

Key words: Romanization, Taiwan, Hanyu Pinyin, Tongyong Pinyin, New Economy, Globalization, Indigenization

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I. INTRODUCTION

In Taiwan, the pinyin, or Romanization, systems that have been used by the government and its people are many. In recent years, however, a consensus has emerged that a single standardized pinyin system should be adopted. The question remains which. The choice was then narrowed down to between Tongyong Pinyin and Hanyu Pinyin. In 1999, after the then-opposition Democratic Progressive Party (DPP) won the presidential election, Tzeng Ovid Jyh-Lang (曾志朗)¹, a well-known linguist and also an academician, was appointed the minister of the Ministry of Education and formally proposed the national adoption of the Hanyu system. However, due to the objection by some high-level officials as well as certain citizen groups, the Executive Yuan did not accept the proposal. After Tzeng stepped down, Huang Rong-cun (黃榮村), as a successor, instead proposed a new policy with the aid of some fresh members of Mandarin Promotion Council. In August of 2002, the Executive Yuan declared that Tongyong be the official pinyin system for Mandarin Chinese; however, it was not required for local governments to abide by this decree. Under such circumstances, the Taipei City insisted on adopting Hanyu Pinyin. Thus, local governments administered by the Nationalist Party all favored Hanyu, while those by the DPP leaned towards Tongyong. So ended the no-standard or multiple-systems era, and a new era of Tongyong-Hanyu dual systems began. For this reason, this paper aims to provide a possible direction for reconciliation.

In 1977, the United Nations adopted Hanyu Pinyin as the standard for Chinese place names, and in 1979, it further decided to use Hanyu for Romanizing all Chinese names and place names. In 1997, Library of Congress adopted Hanyu for Chinese. This has had overwhelming influence on libraries all over the world in their pinyin choices for Chinese. The National Central Library in Taiwan is no exception. In recent years, educational institutes all over the world that have engaged in Mandarin teaching have done so mostly with the aid of Hanyu Pinyin (e.g., Teng Shou-Hsin 鄧守信, Yeh Te-Ming 葉德明, Hsin Shih-Chang 信世昌, and Tseng Chin-Chin 曾金金, 2000). Most Mandarin programs offered to non-native speakers by local universities, including many prestigious national universities such as Taiwan Normal University, Chengchi University, National Taiwan University, and Cheng Kung University, have done the same. More importantly, besides being globalized, Hanyu has also been standardized. In 1982, International Organization for Standardization (ISO) officially declared Hanyu Pinyin as the standard for Chinese proper names. Then, in 1986, the United Nations made the same decision. (For more information on the internationalization of Hanyu Pinyin, see Cheng Chin-Chuan 鄭錦全, Ting Pang-Hsin 丁邦新, Wang William Shi-Yuan 王士元, Mei Tsu-Lin 梅祖麟, 2000). The dominance of Hanyu Pinyin in the international community is a fact that even Tongyong supporters freely admit, even though in Taiwan Hanyu Pinyin is mostly only employed in the academic circles (e.g., Cheng Robert Liang-wei 鄭良偉 and

¹ Chinese names have the family name preceding the given name, and throughout the paper we will follow this convention in Romanization; thus accordingly曾志朗is translated as Tzeng Ovid Jyh-Lang, and not Ovid Jyh-Lang Tzeng. I have gone to great length to try to find out how each and every Chinese name cited in the paper is formally Romanized by its bearer. However, short of contacting each individual, there is really no way to ensure complete accuracy. Some authors in fact spell their names according to how they are pronounced in Southern Min, not Mandarin. I can only apologize to those whose names are not Romanized correctly in the paper. I have thus included an appendix at the end of the paper, where Pinyin and Chinese characters are also listed as reference. This exercise also aptly demonstrates the current chaotic situation of Romanization in Taiwan.

Chang Hsueh-Chien 張學謙, 2001:61). But note also that the Taipei Municipal Government has started to implement Hanyu Pinyin vigorously.

Tongyong Pinyin was officially released and published in 1998 by Yu Bor-chuan (余伯泉), at the time a research fellow of Institute of Ethnology of Academia Sinica, entrusted by Chen Shui-bian (陳水扁), then mayor of Taipei City. Since then, it has been revised a number of times. In August of 2002, the Executive Yuan declared Tongyong the national standard. Unlike Hanyu Pinyin, which is only designed to transcribe Mandarin, Tongyong is said to apply to the three major Chinese dialects used in Taiwan, including Mandarin, Taiwanese Southern Min, and Hakka. (*Tongyong*, incidentally, means *universal*.) However, as much as 91% of a previous Tongyong version overlapped with Hanyu. The final version has 85% identical with Hanyu. To Tongyong supporters, this 15% of difference is enough to symbolize Taiwan's identity and indigenization, so much so that the DPP government recognizes it as the standard. However, the fact is that Tongyong is far from being indigenized, given its recentness and very limited use. It is most symbolic of indigenization. Realistically, Wade-Giles System and NPS-II have enjoyed the biggest market share and are thus also much more indigenized. Now with Hanyu and Tongyong entering the market, the multiplicity of pinyin systems can only make the pinyin issue more confusing than ever before.

In the paper, assuming the network effect of language usage and distribution, which is rather common sense in sociolinguistics, and setting aside the emotional, cultural, political, and even linguistic issues related to pinyin, we first consider the pinyin system's core functions of interface and then discuss Taiwan's choice in terms of the New Economy. The paper is divided into seven sections. Section 2 presents the interface function of pinyin systems. Section 3 considers the nature of "increasing returns" and "path-dependence" of the New Economy, and in section 4, a brief historical account of the standard QWERTY keyboard serves as an analogy for the pinyin controversy. Section 5 uses the globalization and indigenization of English as yet another analogy to shed light on the controversial pinyin issue. In section 6, based upon the above discussions, an evaluation is offered to examine the choice of Taiwan, and finally, section 7 presents the conclusion.

2. THE INTERFACE FUNCTION OF PINYIN SYSTEMS

The main function of any Chinese pinyin system is to transliterate Chinese characters into phonetic symbols or Roman alphabets. Knowing the phonetic symbols thus makes possible the understanding of the messages transmitted by Chinese characters.² The National Phonetic Symbols (NPS), which is not based on Roman alphabets, is a good example. The International Phonetic Alphabets (IPA), however, was designed with the purpose to transcribe all human languages and thus forms an independent and universal phonetic symbolic system. And as such the IPA can also be considered one of the pinyin systems for Chinese.

In the last hundred years, there have been many pinyin systems designed for Chinese. However, of late only four systems have been included as contenders in the Taiwan Pinyin issue: Wade-Giles, NPS-II, Hanyu Pinyin, Tongyong Pinyin, all based

² Pinyin only functions as an interface of sound, so it does not always faithfully transmit the original message in Chinese characters. For example, 余伯泉 and 于博全 are pronounced the same (Yu Bo Cyuan in Tongyong and Yu Bo Quan in Hanyu), but they are two entirely different names. This one-to-many correspondence between pinyin and characters is thus an inherent limitation to all pinyin systems.

on the 26 English alphabets, most of which are also used by other Western languages and thus constitute the most widely used and most convenient set of alphabets.³

The symbolic system of Chinese characters is incompatible with that of English alphabetical letters. A Chinese pinyin system based upon English letters can thus form an interface between these two different information systems for the benefits of communication and information transmission. Although the Chinese Pinyin system does also make an information system by itself, its main function is an interface between Chinese and English alphabetical letters.

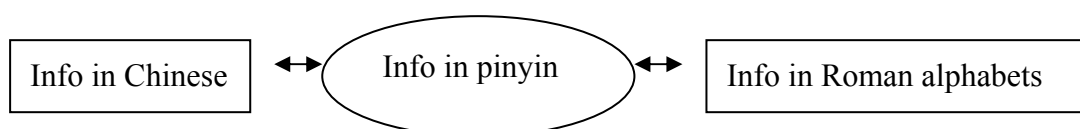


Table 1: Interface function of pinyin systems

All information systems must be consistent, systematic, and coherent. All the English letter-based Chinese pinyin systems mentioned so far meet the requirement, and thus all of them can play the role of interface. However, currently Taiwan faces the problem of multiple systems in one country. For example, two to three different pinyin spellings can be found referring to the same street name. In English, despite the same pronunciation, “sun” and “son” differ in meaning. “Moore” and “More” are two different street names. As a Chinese proverb goes, an error by a hairbreadth may eventually result in an error of a thousand miles. Allowing more than one pinyin system in one nation will definitely lead to confusion.

A pinyin system in fact serves as an interface or a bridge between a nation and the world. In terms of politics, economics, culture, education, and entertainment, the interflow of information between Taiwan and the entire international community is immensely large. Information distribution and information transmission cost a lot money and time. Different pinyin interfaces may thus differ in costs (Lin Chin-Hung 林錦鴻, 2002) In consideration of the cost, the most localized NPS as well as the most professional IPA are both impossible,⁴ for they are much more difficult to learn and cost too much in re-transliteration into a English letter-based pinyin system (e.g., Li Paul Jen-Kui 李壬癸, 1999). They thus require a second layer of transliteration. The double interfaces cost too much.

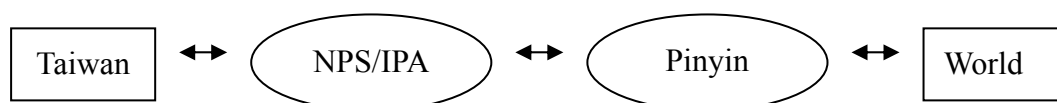


Table 2: Double interfaces required by NPS or IPA

Taiwan’s choice of a pinyin system based upon English alphabets thus bears the lowest cost, for there is only a single interface needed. This single interface is also the only standard. Taiwan thus should not employ the double standards of Tongyong and Hanyu. The 15% difference between them, though not much, means the requirement of yet another process of transliteration between the two. The extra cost due to this additional process is entirely unnecessary. Table 3 shows the two parallel systems in

³ In section 4, the globalization and indigenization of English will be further discussed.

⁴ However, NPS and IPA can surely be applied to other fields, e.g., language teaching and language data recording.

Taiwan and the additional mutual transliteration process needed within the country as well as between Taiwan and the international community, where Hanyu is the single standard.

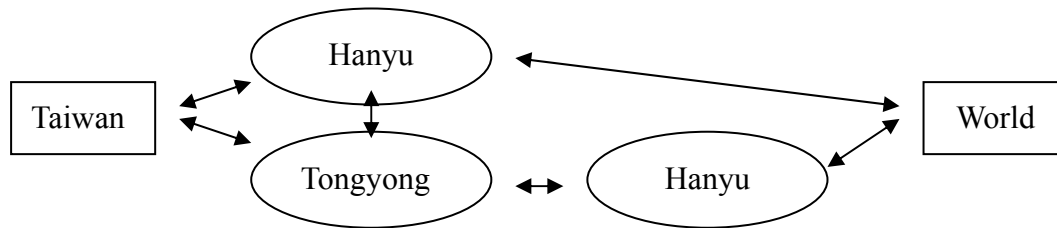


Table 3: Taiwan's "one country, two systems" in pinyin

What if Tongyong is the only standard in Taiwan? Double interfaces are still needed, as shown in Table 4, for the single purpose of a pinyin system is to facilitate communication between Taiwan and the world.

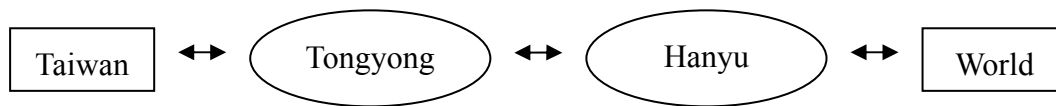


Table 4: Double interface between Tongyong Taiwan and Hanyu World

The co-existence of Tongyong and Hanyu, as shown in Table 4, is precisely the "Taiwan Tongyong, world Hanyu" scenario that Tongyong supporters strive for. The question is: how much would this vision cost Taiwan and would it work if Taiwan is willing to pay this additional cost? The reason why Tzeng Ovid Jyh-Lang (曾志朗), former minister of Ministry of Education, supported Hanyu as a single standard was the additional cost of transferring Tongyong to Hanyu. Some scholars think the problem is beyond additional cost and the double interfaces would in fact become a barrier to information interflow (Ho Dah-an 何大安 *et al*, 2000). In the next two sections, we examine these issues from the perspective of the New Economy.

3. CHARACTERISTICS OF THE NEW ECONOMY

"For I say unto you, that unto every one which hath shall be given; and from him that hath not, even that he hath shall be taken away from him" (Luke 19: 26). In the book *Complexity*, Waldrop (1992) uses this verse to describe the nature of the New Economy. In his theory of the New Economy, Brian Arthur (1994, 1996, 1999, 2000) points out that the New Economy, based mainly upon information and technology, is fundamentally different from the Old Economy, which is resources- and manufacturing-based. The principle of diminishing returns better applies to the Old Economy, while increasing returns reflects the nature of the New Economy.

The New Economy demands information and know-how much more than it does material resources, unlike the Old Economy. The R&D that led to the drug Viagra cost as high as half a billion dollars, but each pill costs only a few cents to manufacture. Window 95's R&D cost was two to three hundred millions dollars, but the manufacturing cost for each unit is less than a dollar. Both of these products have made huge profits, but the important point here is that when the number of sales of a high-tech product increases, the net profit per sale also increase, thus the snow-balling effect of increasing returns.

3.1 Path Dependence

The nature of increasing returns has had a great impact on how products compete and survive in the New Economy. When different products compete for the same market, the one that happens to gain the biggest market share usually takes the lead, for the more net profit it makes, the more competitive it becomes. Path dependence means that the future of a product depends on its historical path (Arthur 1999). For this reason, gaining market share naturally becomes one of the most vital competition strategies. Quality is no longer the only way, nor the most important way, of winning competition.

3.2 Network Effect

The more users a product has, the more convenient this product becomes. Take for example IBM-compatible computers vs. Apple computers and Windows vs. LINUX. The logic is that the more convenient a product is, the more users it has, and vice versa. Therefore, the user network and the product form a relation of mutual positive feedback. The same is true among products themselves as well. For example, telephones, fax machines, personal computers, and Internet form an inter-dependent product network producing a clustering effect. If another product enters this network, it will also easily get a positive feedback. The opposite is also true: if a product stands alone or has a low market share, it becomes more inconvenient. The more inconvenient the product is, the fewer users there will be. This forms a vicious circle. Consumers thus directly or indirectly take into account the present and even the future market share of the product when considering their choices. Let's use an example more relevant to pinyin. When the program language HTML was used by more programmers, more software packages supported it. And when more software supports HTML, the more webs are designed by using HTML, which then becomes somewhat a standard. Natural languages are the same. The more users of a language, the more convenient the language is. The more convenient a language is, the more users it attracts. In the world today, more and more information is transmitted in English, through the Internet, newspapers, magazines, TV programs, movies, and broadcast, etc. Thus, more and more people are motivated to learn English in order to have access to more information. And the more English users, the more information transmitted in English. The same logic applies to pinyin systems.

3.3 Lock-in Effect

The ultimate effect of increasing returns and path-dependence is "lock-in," which can be interpreted in two aspects. On the one hand, a product locks in the users, who no longer consider other choices. On the other hand, a product locks in the market, driving out all other competitors. These two aspects are inseparable in a way. A high-tech information product requires the user not only to pay money for the product but also to afford time and energy to learn how to best use it. Once familiar with its use and thus dependent in some ways upon the product, the user would need to pay a switching cost, again in terms of money, time, and energy, to switch to a competitor product. To give a personal example, in 1986, I started using WordPerfect, then the most popular word processing software on PC under DOS. It fulfilled all my word processing needs and I even used it for the publication of my PhD dissertation. I was "locked in" by WordPerfect for more than ten years and wrote all my papers under it, including yet another book in 1997. Then, I had to switch to Word, because Word, which quickly became the most popular word processing program in Windows. The other crucial reason for the switch is more and more professional journals required

authors submit papers in a Word file. Word had taken over WordPerfect as the default standard. And I have been locked in by Word since 1997. Likewise, Congress Library had been locked in by the Wade-Giles pinyin system for Chinese; however, it then had to switch and be locked in by Hanyu Pinyin.

“All prefer the bigger half of a watermelon”, so goes a famous Taiwanese proverb, which rather nicely sums up the psychological underpinning of the market principle in the new Economy.⁵ The near total dominance of Word Perfect and then that of Word naturally have locked in most of their users. WordPerfect under DOS enjoyed as much as 85% of market share, locking in most of the market of English word processors. Armed with the advantage of increasing returns, Windows applications, bundled under the operation systems, have benefited a great deal from the marketing strategy of product network.⁶ With the increasing dominance of Windows, Word soon took over WordPerfect and fairly quickly locked in the market. Weitzman (1982, 1990) holds that increasing returns is one of the necessary conditions leading to involuntary unemployment. Applying the same rationale, one may argue that the increasing returns of a winning product also factors crucially in the involuntary withdrawal of its competitors. Microsoft products, bundled as a package, were able to cause the involuntary withdrawal of its competitors, e.g., WordPerfect, Lotus, and Netscape, mainly because Microsoft’s strategy of bundling resulted in the network effect in its products and the market. Likewise, the increasing returns of Hanyu Pinyin will continuously choke out other pinyin systems, Tongyong included.

Therefore, it can be seen that with increasing returns a dominant product does not necessarily surpass its competitors on quality. Good timing and successful marketing strategies can all create a path that leads to dominance. In 1995, Hotmail was the first dotcom that provided free e-mail service, and in barely two and a half years as many as 25,000,000 people registered. One million users signed up Hotmail every ten days. Even the giant Microsoft was reluctant to compete with Hotmail, preferring to purchase it instead and thus to continue its wining path. Yahoo, likewise, dominated the portal sites and search engines by being the first to offer free search services. These are both examples of path-dependence. A more dramatic example is found in the historical development of the QWERTY keyboard, frequently referred to by scholars of path-dependence and lock-in, e.g., David (1985). In the following section, we examine the pinyin issue by using the keyboard as an analogy.

4. AN ANALOGY OF THE KEYBOARDS

4.1 The Standard QWERTY

QWERTY keyboard is named for the six letters arranged from left to right on the first row of the keyboard. Since 1872, for more than 130 years the arrangement of the letters has largely remained unchanged. Nearly all computers of the world today use this keyboard, including the most powerful supercomputers in NASA. Table 5 shows the picture included in its patent application in 1878 by its inventor C. L. Sholes.

⁵ Ang Uijin 洪惟仁 (1999a) also applied this Taiwanese proverb to the pinyin debate; Hanyu Pinyin was of course the “bigger half”.

⁶ Netscape was dominant web browser before Microsoft’s Internet Explore took over, largely due to its bundling with Microsoft’s Windows operation system. This is one of the reason why the former filed a sue against the latter.

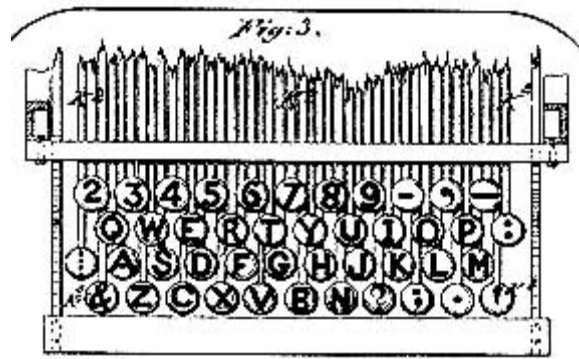


Table 5: The affiliated picture of QWERTY keyboard in 1878

What's the logic behind this letter arrangement? When Sholes designed the prototype of the arm typewriter in 1868, the letters were in alphabetical order and divided into two rows. However, due to the crudeness of the mechanism, when two adjacent keys are simultaneously pressed, the two arms of the two letters would get stuck quite easily (e.g., Rehr, 1996). Sholes spent several years trying different re-arrangements and finally settled on the QWERTY design, which greatly reduced the earlier mechanical difficulty. In other words, although the original ABCD keyboard is easy to learn, its frequent mechanical difficulty might seriously affect the typing speed. On the other hand, the QWERTY keyboard lacks a logical order all together and is difficult to learn, but less mechanical difficulty actually enables better typing speed.⁷

4.2 The Dvorak Design

After QWERTY, many competitors also entered the market, but none was ever a threat to its dominance. In 1932, Dvorak, a professor in Washington State University, designed a new keyboard that takes into considering of frequency and the division of vowels and consonants (see Table 6). The ten letters of the highest frequency are set in the home row, or the middle row, with five vowels on the left and five consonants on the right.

~	1	2	3	4	5	6	7	8	9	0]	=	
	'	,	.	p	y	f	g	c	r	l	/	}	\
	a	o	e	u	i	d	h	t	n	s	-		
	;	q	j	k	x	b	m	w	v	z			

Table 6: Dvorak keyboard (1932)

According to Dvorak, these ten letters in the home row spelled four hundred of the most frequently used words in English then, while the letters in QWERTY's home row only spelled a quarter of them. On the Dvorak keyboard, about 70% of typing in English falls on the home row, while on QWERTY keyboard it is only 32%. Therefore, on Dvorak the distance fingers have to move around is shorter and thus typing should be faster. Many studies indeed confirm that; however, some studies also found that for experienced typists there is no significant difference in typing speed on

⁷ Not surprisingly, many people hold the view that the QWERTY design was meant to slow down typing. This view is oversimplified and not entirely incorrect.

either keyboard. According to a report released by the prestigious Santa Fe Institute, the typing speed of an experienced typist in using the Dvorak keyboard is 4% quicker than in using the QWERTY keyboard (West 1998). In addition, David (1985) also discovered that most of the records of typing speed were achieved on the Dvorak keyboard.

Some scholars, however, criticize this downplay of QWERTY's quality, arguing that its effects have been exaggerated (e.g., Liebowitz and Margolis, 1990, Spulber, 2001 and Liebowitz and Margolis, 2001). But what is more important to us here is this question: is it appropriate to use the case of QWERTY to illustrate the network effect and lock-in? The answer is surely yes. The importance of the network effect itself is indisputable and the success of QWERTY can be largely attributed to it. To avoid any value judgment, we have only quoted the objective facts narrated in David (1985), Rehr (1996), and West (1998).

Consider also this simple fact. With the rapid advance of technology, the mechanical design and mechanism of the typewriter have undergone drastic changes and the original mechanical difficulty that led to the QWERTY design was no longer an issue. Furthermore, with the emergence of the personal computers, why is the QWERTY keyboard from the 19th century still fully dominant in the market, and why is the Dvorak keyboard still nearly zero in its market share? Today's scientific models in statistical and computational analysis can surely arrange the letters of the keyboard more efficiently and come up with a better design (e.g., Zhai *et al*, 2002); however, QWERTY remains virtually the sole choice in the market.

4.3 The Economic Lessons from the Keyboard Market

In the early 1980s, reflecting on the keyboard issue had a great impact on Arthur's development of his theory of the New Economy (Arthur, 1994). The hegemonic dominance of the QWERTY keyboard in the global market mainly resulted from its historical path. The initial dominance led to the effect of path-dependence, and then to lock-in. The learning threshold that QWERTY requires apparently is not enough to deter potential users, who can type on the greatest majority of keyboards once this learning threshold is crossed. Makers of the new generations of typewriters or computers have all recognized this fact: if you stay with QWERTY, then all current users of it can adopt your product without any learning curve. But if you switch to a different (though better) design, the user needs to pay the learning cost to use your product and then still need to use QWERTY elsewhere. Few would be willing to maintain dual typing systems. This is how the QWERTY keyboard has gained its path-dependence and locked in the market till this day.

In fact, the switching cost to use Dvorak is not as high as one might expect. No, the user does not need to buy a new keyboard, much less a new computer. Windows of various versions in fact can be directly reset for Dvorak. The user may be expected to pay a few dollars for re-labeling the keys on the keyboard and spend a few hours training him/herself. Does it worth the effort? This is quoted from a website promoting Dvorak: "unless you die next month, it will save time in the long run". Why then so few people switch to Dvorak? Indeed, it is the inconvenience of adopting oneself to two systems. The switching cost for an individual may seem very low. But consider the hundreds of millions of computers and users—the overall switching cost would be unimaginable. It is a rather safe bet that the path of QWERTY's lock-in will continue into the foreseeable future.

4.4 The Keyboard Interface as an Analogy for Pinyin

In their book *The Horizon of Economics*,⁸ Chu Cyrus Chin Yi (朱敬一) and Lin Chuan (林全) use QWERTY and Hanyu Pinyin as examples to illustrate the concepts of network effect and lock-in, pointing out that the outcome has nothing to do with ideology. It is unthinkable for any Taiwanese keyboard manufacturer to design a “Tongyong keyboard”, which is supposedly better than QWERTY but with 15% difference in alphabet arrangement, and target the Taiwan market only. For argument’s sake we will accept the 15% difference between Tongyong and Hanyu is indeed where the former is superior to the latter, just as the quality of Dvorak is more or less better than that of QWERTY. However, this still does not change the fact that Hanyu is and will be the dominant system for Chinese worldwide. On the other hand, if the quality of QWERTY is not as poor as Arthur and others make it to be and is in fact comparable to that of Dvorak, then the pairing of Dvorak/Tongyong and QWERTY/Hanyu is even more logical, as it is indeed controversial between the two pinyin systems which is of better quality.

In terms of linguistics, especially phonetics and phonology, the quality of the two pinyin systems is rather comparable. However, Hanyu, like QWERTY, enjoys the biggest market share, while Tongyong, like Dvorak, has only its cult followers. Since Hanyu became the standard pinyin system of billions of Chinese, its market share has been growing, and with increasing returns and network effect, it has crowded out the previously dominant Wade-Giles system. In short, globalization and standardization have paved its irreversible lock-in path.

4.5 The Double Switching Cost of Tongyong

In Taiwan the market share of either Tongyong or Hanyu is still insignificant, especially in terms of personal names. Thus, the cost of adopting either one to be the standard pinyin system should be the same, as shown in Table 7.

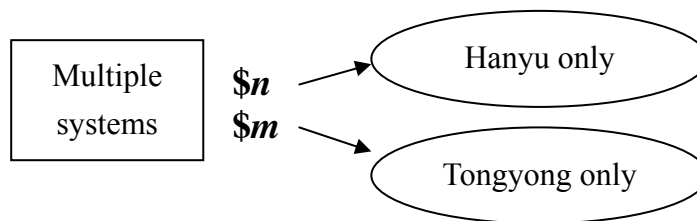


Table 7: Switching cost of Taiwan’s pinyin standardization ($n \approx m$)

As shown in Table 8, since Hanyu is the international standard, it costs nothing to integrate it with the international community. However, Tongyong would require another phase of transfer to Hanyu, before reaching the world.

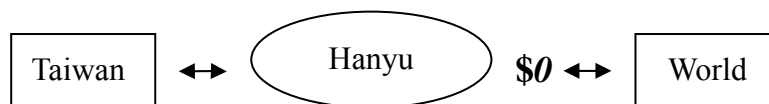


Table 8: Single interface of Hanyu Pinyin

⁸ I thank the anonymous reviewer for pointing out that Chu Cyrus Chin Yi (朱敬一) and Lin Chuan (林全) (2002) already discussed the pinyin issue in Taiwan from the perspectives of network effect and lock in.

How much exactly would it cost to transliterate Tongyong to the international standard Hanyu? There is little consensus on whether this cost is huge or small. In fact some Tongyong supporters contend that not only the cost is high but that, on the contrary, it may even create opportunities for profit making. On the other hand, opponents consider the expected cost to be very high and thus are against the implementation of Tongyong. We thus need to have a more scientific way to figure out a clear-cut answer.

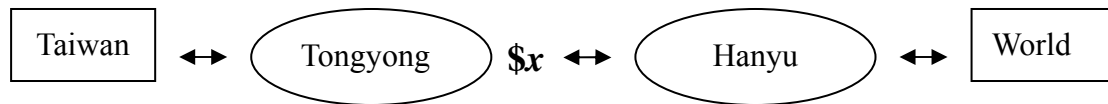


Table 9: Switching cost of Tongyong to Hanyu ($x = ?$)

First, the transferring cost x in Table 9 is not a one-time cost; rather it will always exist as long as Tongyong remains as the standard. We can first look at this problem from the individual users' perspective. Lee Yuan Tseh (李遠哲), ex-president of Academia Sinica, first supported Hanyu, but after a softening of his position he commented that given the 85% overlap between Tongyong and Hanyu, a simple correspondence list or conversion chart is all one needs to resolve the problem. The cost of such a chart is certainly minimal, precisely like that of an individual switching from QWERTY to Dvorak. But how many such charts are needed? There are 23 million people in Taiwan, plus millions of tourists traveling to Taiwan. Many millions more people all over the world visit Internet sites posted in Tongyong. In theory at least, they all need such a chart to get from Tongyong to Hanyu. And, how much time is wasted, in total, on using this chart? It is time wasted because if Hanyu is implemented directly, there will be no need for such a chart. Time is money, after all.

The real question, however, is: would people bother with such a chart? Given the inconvenience of converting Tongyong to Hanyu, a user has two other choices: spend some time and learn Tongyong thoroughly or give up Tongyong entirely and sticks with Hanyu only. Lessons from Dvorak indicate that users making the first choice will be very few. Lessons from QWERTY predict that the greatest majority of users will make the second choice and use Hanyu only. Taiwan as a whole would thus lose numerous opportunities of information exchange by using Tongyong. This unseen cost is substantial and indeed not measurable.

In the field of information technology, the view on cost is likewise divided. Hsu Wen-Lian (許聞廉) (2002), a research fellow at the Institute of Information Science, Academia Sinica holds that the cost would be billions of dollars; however, his colleagues, Hsu Chun-Nan (許鈞南), Ko, Ming-Tat (高明達), Chen Mengchang (陳孟彰), and Chuang Tyng-Ruey (莊庭瑞) (2002) disagree. Nonetheless, both sides do agree that an automatic conversion program is technically unchallenging. Some such programs can even be downloaded for nothing. However, Hsu Wen-Lian (許聞廉 2002) aptly points out some of the disadvantages of Tongyong. For example, one might need to maintain two versions of Web pages, all kinds of software whose applications are related to Chinese pinyin will need to support these two pinyin systems, and due to the two systems the same list of words or names will produce two distinct alphabetical orders. All these problems caused by the need of transliteration contribute the enormous cost of Tongyong.

When it comes to inputting data, indeed it makes no difference whether Tongyong or Hanyu is used. Nonetheless, when the need of conversion arises, the

problem turns out to be extremely complicated and difficult. With his practical experiences, Hsu Wen-Lian (許聞廉 2002) makes the following observation, which is critical to our discussion.

The problem is similar to the “replace” function in a word processing program; it is difficult to get exactly what one wants. The conversion software must be intelligent enough to know what not to convert (e.g., place names need a conversion table, but new names come up all the time and need to be updated constantly, and it will need to be able to automatically identify proper names) and what needs to be converted. In addition, when a previously unknown abbreviation, e.g., JYY, in Tongyong appears in the context, how can the conversion program figure out its full name? And in transliterating law documents, a person must proofread the converted text. Reading materials for foreign readers, in addition to English and Chinese, a Hanyu Pinyin version is also needed. These not only increase the cost of software development but also work against the efficiency of the Web, and this nightmare scenario is not temporary but everlasting. (Translation mine)

We give a few examples to illustrate Hsu’s point. Deng Xiaoping, a name that is locked-in, may not be recognized as the ex-Chinese leader when transliterated into Deng Siao Ping. A company registered in the US under the name Xiaoping will always be Xiaoping; it cannot be converted. Likewise, a brand registered with the name Siao Ping cannot be converted either in any part of the world. Globally there are many Chinese dialects spoken by many people and the Romanization systems of these dialects all, more or less, overlap with Hanyu or Tongyong, but names spelled in these dialects cannot be converted and thus must somehow be recognized by the conversion program. A name in a passport cannot be converted either. This dilemma can be illustrated in the following statements and questions. “Zhang Dade is from China and Jhang Dade is from Taiwan.” “Is his name Jhang Dade?” “Is his name Zhang Dade or Jhang Dade?” “His name is not Zhang Dade.” “Are Zhang and Jhang both coming?” “Don’t confuse Zhang with Jhang.” “Is it possible that Mr. Jhang is from China?” In all these cases, none can be converted if the point made by its speaker is to be persevered. How can a conversion program decide? Hsu Wen-Lian (許聞廉) cites many other examples in his article, “The Difficulties of Transliteration between Chinese Pinyin Systems”.

Some readers might ask, “Is it that serious? How many such exceptional cases might there be?” Now, just imagine such errors at 5%. That may not seem high, but the real problem is you have no way of knowing where the errors are. Once at a conference of computational linguistics, when talking about why the machine translation output stills requires human proofreading, Jaime Carbonell explained, “If someone offers you some cookies, but tells you that only two or three are poisonous, will you take any of these cookies?” Of course not, not before you find out which ones are poisonous. Likewise, we can see why American Congress Library spent several years converting data from Wade-Giles to Hanyu and did not simply use an automatic conversion program. Thus, as long as the need of transliteration between Tongyong and Hanyu exists, the resulting troubles will never end and the cost high and continuous.

What is most unfortunate is that some people misconstrue the high cost as commercial opportunities for profit. For example, Hsu Chun-Nan (許鈞南) *et al* (2002) insisted that implementing Tongyong not only would not cost much but would also create business opportunities of tens of millions of dollars. But of course there will be people or business profiting from the high cost that Taiwan as a whole must

pay for the conversion between Tongyong and Hanyu. Consider these two examples. After the catastrophic 921 earthquake, stocks of the construction sector soared; the nightmare of the SARS crisis saw the stocks of biochemical companies and manufacturers of surgical masks sky-racketing. Likewise, the adaptation of Tongyong will be like a disaster as the conversion cost will be immense. It is most unfortunate that some individuals and companies will definitely profit from this cost be seen as a reason for supporting Tongyong. It would be like hoping for another 921 or SARS because some companies will no doubt profit from it again. These Tongyong supporters totally ignored the huge loss that these disasters incurred. The potential loss that Tongyong will inevitably bring is precisely why Lin Chuan (林全), former minister of finance under the DPP government, supported Hanyu and not Tongyong (Chu Cyrus Chin Yi 朱敬一 and Lin Chuan 林全, 2002).

Taiwan really has no better choice than to standardize its pinyin system, despite the necessary cost, for the cost of not doing so is much greater. According to a statement issued by the Research, Development and Evaluation Commission under Executive Yuan, by December of 2002 the cost of replacing signs for major roads into Tongyong alone was NT\$360,000,000 already. The cost of replacing signs of every street that currently has a sign in a different pinyin would be astronomical. Why did the American Congress Library spend several years of time and a huge amount of money converting Wade-Giles to Hanyu? According to Cheng Chin-Chuan (鄭錦全) *et al* (2002), the reason is that Hanyu is the international standard. In other words, the cost of not converting would be even greater in the long run. Again, Chu Cyrus Chin Yi (朱敬一) and Lin Chuan (林全) (2002: 26) agreed. Taiwan should consider its pinyin issue from the same perspective.

4.6 Pinyin: A Game of Yesterday

Arthur (1996, 2000) compares the information and high tech market to a casino where different games are played but they share the characteristic of winner-take-all. A vital, though not absolute, strategy is for a product of high quality to take an initial advantage in the market. For this reason, a decision maker's first priority is to judge which game will be the most important of all and then try to win it as rapidly as possible. This paper aims to explore the pinyin choice of Taiwan in terms of New Economy. So, if various points of view can reach a consensus, the conclusion will be much more persuasive. So, in that spirit, we note that Liebowitz (2002) disagrees with Arthur and other economists in terms of the network effect and cites the dot-com bubble as a counter-example.⁹ Liebowitz points out that the market of the Internet economy is not necessarily winner-take-all. Furthermore, winner-take-all does not necessarily mean first-mover-wins. Accordingly, an initial advantage in a market does not necessarily mean dominance, much less winner-take-all.

We now examine the pinyin issue from Liebowitz's view. First, let's see if the game of pinyin is indeed winner-take-all. Are there possible competitors in the global pinyin market besides Hanyu? Chu Cyrus Chin Yi (朱敬一) and Lin Chuan (林全) (2002: 26), two renowned economists in Taiwan, firmly believe that the outcome is certain and even if Taiwan adopts Tongyong, it must be converted to Hanyu in order to be integrated with the international community. So, there is little room for doubt that the game of pinyin is indeed winner-take-all. Liebowitz is right, however, Hanyu, the winner that does take all, is certainly not the first mover. Actually, it came after NPS, IPA, and Wade-Giles. So, the next logical question is, would Tongyong stand

⁹ I thank the anonymous reviewer who pointed out this dissenting view and the reference source.

any chance competing or even replacing Hanyu in the future? Note that Liebowitz does recognize the significance of the network effect. As an interface between two different writing systems, the pinyin system is a typical product of the network effect. Therefore, the network effect would dictate that Hanyu's dominance will only increase. Chu Cyrus Chin Yi (朱敬一) and Lin Chuan (林全) (2002: 26) thus predicted that whatever Taiwan's efforts and considerations would not change this fact. Therefore, under the divergent views of Arthur and Liebowitz, the conclusion is the same, that the outcome of the competition in the global Chinese pinyin market is set. Under such circumstances, Taiwan is in a dire need of foresight.¹⁰ It is foolish to pay a remarkably high price just to stay in a losing game.¹¹ Pinyin is already a game of yesterday. Taiwan should learn from this lesson in the global market and develop the foresight and capacity to identify and win future games.

In the following section, we will discuss the globalization and indigenization of English as well as its spelling system, which should likewise shed light on the controversies over Taiwan's pinyin choice.

5. THE ANALOGY OF ENGLISH SPELLING SYSTEMS

English is no doubt the most globalized language in history. In the late eighteenth century, at the outset of the industrial revolution, the Western imperial powers rose, establishing colonies in all parts of the world. In the Victorian Age, the Great Britain established the only country in history whose sun never set. For this reason, English became the dominant language at the time. The approximately 50 members of the Commonwealth account for one-third of the world's population. With the outbreak of World War II, America rose as a super power militarily, economically, and culturally, influencing the whole world and further strengthening English's dominance. At the end of the twentieth century, the advent of the Internet further pushed for the thorough globalization of English. In the 21st century of the global information integration, the network effect of English will prevail and push toward total lock-in. (See Crystal (1997) for the historical development of English.)

In the recent 200 years, owing to natural language changes and the influence of indigenous languages, English, as a global language, has also developed into a number of dialects, e.g., American English, Australian English, New Zealand English, Indian English, and Singaporean English, to name just a few. Some of these countries have established their own standards that are more or less different from the most dominant American English or British English. Some scholars now use the plural form "Englishes" to reflect the phenomenon of the indigenization of English. Likewise, Beijing Mandarin, Taiwan Mandarin, Singapore Mandarin are also dialects of the same language. All these English dialects, American English included, have inherited their pronunciation and spellings from British English. Language indigenization is natural due to historical changes motivated by social, cultural, or psychological factors. It is reasonable, if not necessary, for any English-speaking country, e.g., Australia and New Zealand, to take into consideration the many years' of indigenization of its English in establishing its national standards of an official

¹⁰ Wang Hsu Samuel (王旭) (2001) frankly pointed out that China has been promoting Hanyu since 1954, whereas Taiwan did not develop its own NPS-II until 1984 when it realized that Hanyu was gaining significant acceptance internationally.

¹¹ For example, Chiang Wen-Yu (江文瑜), Yu Bor-chuan (余伯泉), Jen Theresa Chang-whei (任長慧), and Lee Ching-Tse (李清澤) (2001) only expected Tongyong to have a breakthrough in the Mandarin teaching market. Yu Bor-chuan's (余伯泉) (2000) ambition was only for Tongyong to co-exist with Hanyu.

English. Supporters of Tongyong often cite such examples, e.g., Australia and New Zealand, and argue that Taiwan should implement its own indigenized pinyin system (e.g., Yu Bor-chuan 余伯泉 2000, Chiang Wen-Yu 江文瑜 *et al.*, 2001: 113).

Many cases globally prove this point: different governments do not adopt a single standard for the same language. Australia and New Zealand, each with a smaller population than that of Taipei, insist on their own spelling conventions. Even though the differences are minor, they do maintain their own unique features. (Yu Bor-chuan 余伯泉, 2000)

The facts about the indigenized Englishes are right but the extended argument for Tongyong is unfortunately wrong. It is quite inappropriate to compare Tongyong to any of these indigenized English dialects, for Tongyong is not, at least not yet, part of the indigenized culture in Taiwan. In comparison, the Church Romanized Writing (CRW) and National Phonetic Symbols (NPS) are more likely candidates, for the former has been in use for over one hundred years, and the latter, dozens of years. After its repeated revisions, the final version of Tongyong appeared barely a few years; its value in terms of indigenization is at best symbolic with little substance. No country in the world, English-speaking or not, would implement an official English spelling system that intentionally contains arbitrary features, which are distinct from the dominant British or American conventions and entirely new to the local population, and declare that such features symbolize the country's sovereignty and indigenized characteristics. Even countries like Iraq, Iran, Syria, Cuba and North Korea, which are hostile towards Britain and the US, would not do that, because doing so contradicts the fundamental purpose of using this language at the first place.

Among the various English dialects, Taiwan's educational authorities choose to focus on American English, the most globalized variety. Several years ago, President Chen in fact suggested that English be included as an official language. If this is the case, one cannot imagine Taiwan adopt any regional English such as Australian English or New Zealand English. It most certainly cannot devise an official English spelling system that is unique to Taiwan, with 15% differences from the dominant international varieties. Doing so would be entirely against Taiwan's self-interest. If indeed, as Crystal (1997) predicted, an international standard English does emerge, it would without doubt be Taiwan's best choice.

It is in fact very easy to improve the English spelling. Silent consonants can be deleted, for example, *knee* to *nee* and *night* to *nite*. One can easily change words like *city* to *sity*, *cat* to *kat*, *photo* to *foto*, *Christmas* to *Kristmas* so that one sound matches only one letter. Such changes can certainly make English spellings more consistent and thus far easier to learn. However, such improvements are difficult to imagine due to the lock-in effect of current spellings. Let's go back to the controversy of pinyin again. Most of Taiwan's citizens use much more English than pinyin in their daily life; English is thus much more indigenized than any pinyin system. The people of Taiwan, Tongyong-supporters included, have thus wholeheartedly accepted international English largely, if not wholly, due to economic factors. It is thus illogical for the same people to reject the international standard pinyin Hanyu. One reason for this irrationality is the anti-China sentiment, as Hanyu is perceived as a symbol of the Communist China. Tongyong, on the other hand, is considered to be purely Taiwan. So, politically, Tongyong turns out to be the only choice for people with such sentiments. With the drastic polarization in Taiwan's politics, the two pinyin systems have also become polarized. Though perceived to have a symbolic value of indigenization, Tongyong is barely in its seeding stage, not at all part of Taiwan's

indigenized language culture. The extent of Tongyong's indigenization and its market share is far behind NPS-II or Wade-Giles System.¹² Therefore, the only persuasive reason for Tongyong-supporters is the anti-China political connotation.

In the following section, we evaluate the logic in the arguments used to support Tongyong and point out a direction for reconciliation.

6. "Discounts" in the Arguments for Tongyong

Any consideration of Taiwan's pinyin choice in term of the New Economy must be based on the fundamental premise that pinyin, as an information system, functions as an interface between information in Chinese and a globally accessible alphabet-based spelling system. Accordingly, Taiwan's choice of a standardized pinyin system cannot be isolated from the acceptance of this system by the international community. With that in mind, this section critically reviews the arguments for Tongyong.

6.1 Confusing Monopoly with Standardization

To simplify the debate, we will assume that the quality of Tongyong is better than that of Hanyu. Since the two systems overlap by 85%, we could suppose that the score of Tongyong is 100 and Hanyu is thus 85.¹³ Under such an assumption, Hanyu is similar to QWERTY and the conventional English spellings, while Tongyong is more like Dvorak and the (fictitious) improved English spellings. With increasing returns, a product of lesser quality still might win the competition because of some advantage in its historical path, the QWERTY keyboard for example.¹⁴ As Steve Job, the founder of Apple Computer, once candidly confessed, the reason for his hatred of Microsoft is not because Microsoft makes a lot of money, but because it makes second-rate products. In the anti-monopoly sue against Microsoft, the assistant attorney general representing the government was actually influenced by Arthur's theory of New Economy. The similarity between standardization and monopoly is that only one product or one size is allowed in the market. The crucial difference between them is that monopoly, seen as a serious obstacle to fair competition, is unacceptable to a free market, while standardization is encouraged, endorsed, and sought after by the free market for it provides a starting point and a platform for fair competition. The following statement regarding monopoly by Yu Bor-chuan (余伯泉) (2000) is thus entirely correct.

If only one company is permitted to produce a product, the problem of monopoly arises, which works against the economic principles of the market as well as the interests of consumers. (Translation mine)

¹² Indigenization does not necessarily come from an indigenous inventor. For example, the term *Walkman* was coined in Japan by a Japanese company, but this term is more indigenized in the US than in Japan. The term *OK* is very much indigenized in Taiwan. Invented by Chinese, the chess game *go* is however more indigenized in Japan than in China. Moreover, the so-called *Taiwanese* language is directly linked to Southern Min in China, and so is Hakka, but Taiwanese people consider both of them indigenous.

¹³ This is in fact also a controversial issue; for example, Dong Zhongsi (董忠司) (2001) argues that Tongyong inherits some general disadvantages from Hanyu. Tse (2000) holds the view that in some areas Hanyu is superior to Tongyong phonetically. And Cheng Robert Liang-wei (鄭良偉) and Chang Hsueh-Chien (張學謙) (2001) think the version named Tongyong A is better than the version Tongyong B, the one adopted by the DPP government.

¹⁴ The patent of QWERTY has long expired but it remains as an unofficial default standard.

Following this logic, Yu then argues that Tongyong and Hanyu should thus coexist and prosper together. However, this deduction is simply wrong and misleading. He has confused profitable monopoly with non-profitable standardization. This is how ISO defines “standardization: “In an attempt to enhance conveniences and interests of all persons concerned, standardization is made regular and correct rules and process especially for certain activities.” Accordingly, standardization enhances productivity and reduces waste in costs. (Lee Lucy Te-chu 李德竹, 1999). The confusing multi-systems of pinyin interface can only be harmful to fair competition, hinder communication, and weaken Taiwan’s competitiveness. And that is precisely why Taiwan has been pursuing a national standard. It is for the same exact reason that the international community have come together and worked out a standard pinyin system for Chinese. What Taiwan has been seeking to accomplish, the international community has already accomplished. Taiwan can be fully confident and consider itself an important member of this international community. If so, while we are striving to rejoin the United Nations and ISO, we should of course abide by international standards, pinyin included; if not, we will only create unnecessary burdens and obstacles for ourselves (Cheng Chin-Chuan 鄭錦全, Ting Pang-Hsin 丁邦新, Wang William Shi-Yuan 王士元, Mei Tsu-Lin 梅祖麟, 2000).

6.2 Debate over Tongyong vs. Church Romanized Writing

In Taiwan there is another pinyin debate that has been going, which is no less fierce though less known. It is between Tongyong and Church Romanized Writing (CRW 教會羅馬拼音) for the pinyin of the Taiwanese Southern Min. In this particular debate, however, politics is less a consideration (for both sides largely fall in the same range in Taiwan’s political spectrum),¹⁵ the only factor remains an economic one, the switching cost. One of the reasons the Ministry of Education supported Tongyong for Mandarin is because Tongyong supporters have always claimed that it can be applied to Taiwanese as well (*tongyong* literally means *universal*), which, if true, has the tremendous advantage of network effect.¹⁶ However, once that factor is removed, the legitimacy of Tongyong no longer stands. The reason for supporting CRW is simply because it has been in active use for over 140 years in Taiwan.¹⁷ It is a deep-rooted indigenized Taiwanese pinyin system (Ong Iok-tek 王育德, 1993). Switching from CRW to Tongyong, the current population in Taiwan and overseas using the former system will certainly pay a huge cost; their reluctance is entirely understandable.¹⁸

6.3 Social and Political Arguments for Tongyong

No one will dispute the fact that support for Tongyong is largely, if not solely, due to animosity against mainland China. If the two sides across the Taiwan Strait

¹⁵ The political stand of the two sides is the same. For example, in its electronic newsletter of 03/14/2003, Taiwan’s Presbyterian Church asked its members to oppose Tongyong and support CRW in promoting Taiwan’s language education, and in the same issue there is a call to support Taiwan be renamed *The Republic of Taiwan*.

¹⁶ Some scholars criticized and questioned the so-called “universal” nature of Tongyong. (e.g., Chiu Iau-Chu 邱耀初 and Xu Hezhong 許鶴鐘, 2001; Li Paul Jen-Kui 李壬癸, 1999a, 1999b; Ang Uijin 洪惟仁, 1999a; Li Xi 李璠, 1998:5; Ho Dah-an 何大安 *et al*, 2000).

¹⁷ According to *Principles of POJ or the Taiwanese Orthography* (白話字基本論) by Zhang Yu-hong (張裕宏), Church Romanized Writing (CRW 教會羅馬字) has existed in Taiwan for more than 180 years.

¹⁸ For the same reason, the supporters of CRW were against the TLPA system issued by the Ministry of Education in 1998.

were friendly allies like Australia and New Zealand, the pinyin systems would instantly become unified. So, it is understandable that sentiments against China lead to an anti-Hanyu stand. However, it is completely inconsistent that the anti-Hanyu stand results in the support for Tongyong and not for NPS-II, which for sure enjoys a greater extent of indigenization. Tongyong supporters then argue that Tongyong is better because it has more in common with Hanyu, the international standard. This argumentation is blatantly self-contradictory. In Chiu Iau-Chu (邱耀初) and Xu Hezhong (許鶴鐘) (2001), the flaws in this line of reasoning are well-analyzed. For Tongyong supporters, Hanyu thus has this dual status: China pinyin and international standard pinyin and their logic goes something like this: anti-China and thus anti-China pinyin; anti-China pinyin and thus pro-indigenized pinyin;¹⁹ however, given the practical considerations of international standards, Tongyong is preferred over NPS-II (e.g. Huang Shuanfan 黃宣範 and Cheng Robert Liang-wei 鄭良偉, 1999; Lien Chinfa 連金發 *et al* 1998; Cheng Robert Liang-wei 鄭良偉 *et al*, 1999). However, in consideration of being integrated with the international community, Taiwan's choice must be Tongyong rather than NPS-II.²⁰

All arguments in terms of culture, international recognition, subjective perception that have been used to support Tongyong can in fact be better applied to NPS-II, which has a longer history and a bigger market share. Accordingly, Lien Chinfa (連金發) *et al* (1998) support the choice of NPS-II, criticizing Tongyong for being too similar to China's Hanyu. Likewise Ji Dan-ni (積丹尼 Dan Jacobson) (1999) mocks Tongyong as a red dwarf dressed in green²¹ for its overlap with Hanyu and considers NPS-II as a better candidate for Taiwan because its 37.8% difference from Hanyu. Tongyong supporters are never shy to cite this 37.8% difference between NPS-II and Hanyu as one of the arguments for Tongyong (e.g., Yu Bor-chuan 余伯泉, 1999). With 15% difference from Hanyu, Tongyong, so argues Yu, is compatible, and thus can co-exist, with Hanyu. The serious question posed by Ang Uijin (洪惟仁) (1999b): "Exactly what percentage of difference would make a system incompatible?" has never received an answer.

Back to the economics, in light of the switching cost, which one between Tongyong and NPS-II is superior? This question concerns two aspects. First, there is the cost of converting the current multi-systems, and second, there is the cost of converting to the international standard, Hanyu. NPS-II's market share is approximately 10%. So, on the first level, NPS-II affords a 10% saving; however, the cost of converting NPS-II to Hanyu would be almost 2.5 times higher than that of converting Tongyong to Hanyu. See Table 10.

¹⁹ Chiang Wen-Yu (江文瑜) *et al* (2001:110) directly call Hanyu *China Pinyin*. Due to this political symbolism, Hanyu is thus considered to be a worst choice. (p. 122)

²⁰ Tongyong's emergence also confirms the path dependence effect. At the beginning, it was commissioned by Chen Shui-bian, then mayor of Taipei City. After Chen, the leader of the green camp, won the presidential election, the successful path of Tongyong has been more consolidated.

²¹ The political camps in Taiwan are divided as blue (led by the KMT) vs. green (led by the DPP). And red of course refers to China.

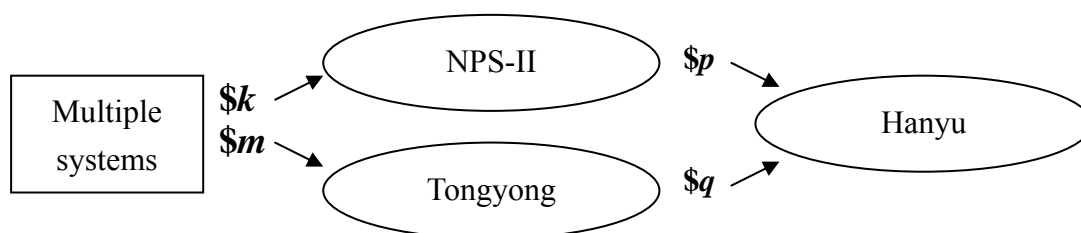


Table 10: A comparison of Tongyong and NPS-II in transferring costs
 $(0.9k \approx m, p \approx 2.5q, \text{ and } (k+p) > (m+q))$

As mentioned earlier, the conversion cost for the first level is one-time only. Nevertheless, the conversion cost on the second level is on-going. Thus, according to Table 10, the choice of Tongyong over Hanyu is reasonable.²² But of course obviously if Hanyu is directly adopted, the cost on the second level would be zero, making it by far the best choice. At this point, Tongyong supporters would switch to cultural, social, emotional, and political factors and argue for Tongyong. In the following section, we examine this line of reasoning.

All arguments in favor of Tongyong over Hanyu are based upon the 15% difference between “Taiwan Tongyong” and “China Hanyu”, rather than the international standard. These arguments cover sovereignty, image, local culture, national independence, indigenization, semiotics, political symbol, political psychology, national identity, group identity, pluralistic values, multi-cultures, emotions, symbolism, and the like. Therefore, the weakest link, the Achilles’ heel, in all these arguments for Tongyong is the fact that “Taiwan Tongyong” overlaps with “China Hanyu” by a whopping 85%. Over Tongyong’s development, the difference from Hanyu ranged from 9% to 15%, which is enough for its supporters to claim Tongyong as a distinctive Taiwanese system satisfying all above-mentioned non-economic factors. Thus the obvious and crucial question is: what is the minimal difference required to satisfy these factors or these supporters? Is it 9%, 1% or can it be 0.1%? We find only a hint to this answer in Chiang Wen-Yu (江文瑜) *et al* (2002):

We do not advocate the view that the more different, the better; nor do we think a unified standard is most important. We maintain that language is both a tool and an identity. The issue can be considered from two angles: 1. is it necessary to reconcile the two conceptions of language, tool versus identity? 2. is it practical to reconcile the two conceptions of language, tool versus identity? That is, is it necessary and practical for Taiwan to “challenge” Hanyu Pinyin? Or, should Taiwan, as Mann (2000) says, wave linguistic white flag? (Translation mine)

For argument’s sake, we will take it for granted that both answers are yes. But how then is Tongyong is going to do the job? If Tongyong were 85% different, it might have made more sense that 15% of overlap could not be considered ‘white flag’. But it is the other way around. Consider the case of English in Taiwan. After all, both Tongyong and Hanyu are based on the 26 English letters. In Taiwan, English has been a required subject from the junior high all the way to the university level. Even the government helped establish the standard General English Proficiency Test. Tens of thousands of English cram schools can be found in every city. On May 30, 2002, President Chen even publicly announced that, in light of the language policies of

²² Ang Uijin’s (洪惟仁) (1999a) reason for supporting Wade-Giles is also economics-based, for documents in Wade-Giles for Taiwanese, Hakka, and aboriginal languages are enormous. In other words, its significant market share means a high switching cost.

Singapore and Hong Kong, Taiwan should consider English as a second official language to enhance national competitiveness and to integrate with the international community. Soon after that the Executive Yuan promoted a project “Challenge 2008: Major National Development Plans,” in which English has been planned to become a semi-official language with the hope that English will become part of citizens’ daily life so that Taiwan can be efficiently integrated in the global village. This surely is a much bigger and more serious issue than that of pinyin, and yet there has virtually been no controversy whatsoever. Scholars sharing views expressed by Chiang Wen-Yu (江文瑜) *et al* (2002), or Tongyong supporters in general really, have never come out and accused President Chen of “waving linguistic white flags” or the DPP government of surrendering to the US or UK.²³ Everyone seems to be happy to accept that the only reason for President Chen’s idea is that using English as an official language can be helpful for international integration and economic competitiveness. Why then doesn’t the DPP government apply the same logic to the pinyin issue? It is entirely unnecessary for anyone to see the adaptation of Hanyu as a linguistic white flag to China.

English is not owned by any country, it is not copyrighted, and the more people use it, the more useful it is. So, Taiwan needs no approval from any other country or foreign entity to establish English as an official language. Pinyin systems are exactly the same. Singapore has confidently adopted Hanyu Pinyin because it is the international standard and yet no one sees it as any kind of surrender (Goh Yeng-Seng 吳英成, 2000). American Congress Library’s conversion to Hanyu is another example. If Mann were to comment that the Congress Library had waved linguistic white flags were Yang Ch’ing-ch’u (楊青矗) to send a letter urging the Library not to “dance with China”, the Library would probably have patiently explained that this is dancing with the international standard and this is a necessary surrender to avoid a much greater long-term cost. The pinyin system endorsed by the United Nations and ISO likewise has no copyright. Yu Bor-chuan’s (余伯泉) adopted 85% of its contents but he did not breach any copyright law. Furthermore, since Yu also clearly cited the sources, he committed no plagiarism, contra the accusation made by Cheng Chin-Chuan (鄭錦全) *et al* (2000). Because of the increasing returns and the network effect, inventors and current users of any pinyin system would absolutely welcome more users. The simple conclusion is thus no reasonable person will see the adaptation of Hanyu as a linguistic white flag to China.

6.4 Tongyong’s Divisive Effect

If we were to consider Hanyu as China Pinyin and thus agree that Taiwan must have its own distinctive pinyin, would Tongyong qualify? A positive answer can only be obtained at 85% discount. In terms of proper names (such as person names, place name, company names, product names, institution names, school names, and book names), even if Taiwan thoroughly adopts Tongyong, most of pinyin of these Taiwanese names can not distinguish themselves from Chinese ones. There are 410 syllables in Mandarin Chinese and 85% of them have the same spelling in Tongyong and Hanyu. Therefore, when one syllable (e.g., a surname) appears alone, the

²³ Countries that have English as an official language are likely ex-colonies of England. So, some argue that this move is somewhat degrading, for example, Chen Stephen S. F. (陳錫蕃) (2002). Indeed, this view is narrow-minded and unnecessary, like the rejection of Hanyu due to China. Objectively speaking, English is more indigenized in Taiwan than any pinyin system, and the extent of its indigenization in Taiwan will only strengthen along with its growing globalization.

probability that its spelling in the two pinyin systems is the same is as high as 85%. In a two-syllable name (e.g. a given name, a company name, or a registered product name), the probability that both systems are the same is as high as 72%. For the most common three-syllable personal names, the probability of being the same is as high as 61%. So, if Tongyong is thoroughly adopted in Taiwan, more than 60% of Taiwanese names will be thought Chinese. Hsu Chun-Nan (許鈞南) *et al* (2002) are in favor of Tongyong and against Hanyu and argue that the adoption of the latter would mean Taiwanese citizens being mistaken to be Chinese and Taiwanese manufacturers to be Chinese manufacturers.

In foreign countries, when we see Romanized names with the strange letters *q* or *x*, we know right away they are Chinese people or Chinese organizations. For example, when attending an international conference, seeing a Dr. Hsu, we know he must be from Taiwan and when you meet you feel a sense of familiarity. If everyone becomes Dr. Xu, there is no way of telling who is from where. It is important to have this distinction, say when one is collecting signatures in protest of China's missile tests. There are other adverse consequences for being taken to be from China. The proposal to have the name *Taiwan* on our passports received unanimous support; it is because many people more or less have had experiences of being mistaken to be from China. Girls were thought to be prostitutes and men taken to be people smugglers. A Taiwan tourist was unconscious and hospitalized, but the hospital notified the Chinese counselor. Christians would ask you about religion prosecution and other inhuman policies like the one-child policy. So, if Taiwanese names are transcribed in Hanyu, we cannot distinguish ourselves from people from mainland China. Likewise, if Taiwanese manufacturers are mistaken to be Chinese manufacturers, the quality and reputation of their products would be in doubt and lower prices would be offered. They would be scrutinized more harshly for counterfeit and tax invasion. Would the supporters of Hanyu be accountable for all these risks? (Translation mine)

By their own logic, given that Hsu Chun-Nan (許鈞南) *et al* are 100% against Hanyu, they should also be 60%, 70% or 85% against Tongyong, because the scenario they painted would still apply to this many Taiwanese citizens and manufacturers. For example, the Tongyong pinyin of the President's name, currently the most important name in Taiwan, is Chen Shui-Bian, which is unfortunately exactly the same in Hanyu. Would these scholars consider that President Chen could be mistaken to be the Chinese President? Indeed, almost ten million Taiwanese would meet the same trouble because of their surname pinyin. Would they feel that they are so unlucky? According to these scholars' reasoning, if Tongyong spellings of Taiwanese manufacturers are the same as Hanyu, would these scholars be accountable for their risks and losses due to the mistaken nationality?

According to their logic, these scholars should lend more support to Wade-Giles or NPS-II. After all, Tongyong is merely 15% different from Hanyu and would make more Taiwanese to be mistaken as being from China. Their reasoning also presumes quite naively that people all over the world can distinguish the 15% difference between Tongyong and Hanyu.²⁴ Very few Taiwanese people themselves can distinguish the 15% difference, let alone people in foreign lands totally unconcerned with this issue. It is also a biased view that the pinyin of a name can show nationality and political persuasion. For example, a Dr. Hsu, born and raised in the US, might not even speak Chinese. A Dr. Xu, a naturalized Australian, who witnessed the Tiananmen

²⁴ Ang Uijin (洪惟仁) (1999a) laments that most opinions expressed in the meetings on pinyin held by the Ministry of Education as well as in media are immature. If so, one can imagine how little the general public really knows about this issue.

massacre, may be a more adamant believer in democracy and self-determination than most Taiwanese. So, the presumption of their reasoning apparently shows their prejudice towards people from China, which is rather non-constructive. Similar arguments about national identity are frequently iterated by supporters of Tongyong. For example, Lin Meirong's (林美容) (1999) view expressed in the article "Against Taipei's Linguistic Scenes Turning into Those of Beijing" is endorsed by Chiang Wen-Yu (江文瑜) *et al* (2002:114):

If we adopt Hanyu pinyin, the current Si Men Ding would then be Ximending. In this way, the names of at least one hundred Taipei streets would be changed. A high percentage of streets have names that would be affected, over a hundred streets at least. In other words, when walking the streets in Taipei and looking at the street names in Hanyu Pinyin, one would feel as if one were in Beijing or Shanghai. This would do Taiwan no good, whose international status is already somewhat ambiguous.

Place names and street names in Taiwan are generally of two syllables. Thus, according to this logic, even if Taipei adopts Tongyong, above 70% of its street names will still be the same as those of Hanyu; thus, one still can not tell whether one is in Taipei or in Beijing most of the time. If a foreigner walks on Zhong San North Road, he is happy that he is in Formosa. And then, he turns to Roosevelt Road, he feels that he is in the US. However, once he turns to Ji Long Road, he can no longer sure whether he is in Beijing or in Taipei. This line of reasoning is surely illogical. The presumption that travelers of Taiwan not only can all tell the 15% difference between Tongyong and Hanyu but also associate these differences with political significance is simply naïve.

6.5 Self-contradiction in Transliterating Tongyong to Hanyu

Now we will examine the consensus on the need to convert Tongyong to Hanyu in order to link to the international community. According to the official statements issued by the Research, Development and Evaluation Commission under the Executive Yuan, the number one task associated with the implementation of Tongyong is commission the National Central Library to develop a computer system to convert between Tongyong and Hanyu. Thus, if Taiwan thoroughly adopts Tongyong, all government agencies and private organizations realize they need to convert information in Tongyong to Hanyu, in spite of the cost associated with computers or manpower. But, here is the catch: all pinyin information presented to the world by Taiwan would be ultimately in Hanyu! So the world never gets a chance to see Taiwan in Tongyong after all, and all these efforts to set Taiwan apart from China by using Tongyong would be in vain. Within Taiwan itself people use Chinese, not pinyin, so who exactly is all that information coded in Tongyong for?

6.6 Self-contradiction in the Compatibility between Tongyong and Hanyu

The most misleading part of arguments for Tongyong is that, in spite of the 15% difference, Tongyong and Hanyu are said to be two compatible systems of the same international standard. For example, this is what Yu Bor-chuan (余伯泉) (2000) states exactly:

In comparing them to video tapes, both Chinese Hanyu and Taiwanese Tongyong follow the same VHS standard but are made by different companies. So they are compatible.

All VHS video tapes are of one single standard. Hanyu Pinyin has been recognized as the standard pinyin for Chinese by the international community, Tongyong has not. Given the 15% difference, the two are not of the same standard and are thus not compatible. The analogy of the two systems being like two VHS tapes made by two different companies is simply wrong. If Tongyong supporters really do consider the two systems compatible, why then would they object to Taipei City's adopting Hanyu? Everyone in Taiwan knows that we should avoid "one country, two systems", or Hanyu Taipei, Tongyong Taiwan", and pursue a single standard. The world of course feels the same. That is, since Chinese pinyin has already been standardized in the international community with cost paid, any deviation from the standard will not be welcomed or accepted.

6.7 A Direction for Reconciliation

Tongyong's 15% difference can distinguish Taiwan from China all right, in theory at least, but it could also prove to be divisive within Taiwan itself. In spite of the 85% overlap, the international community will not accept Tongyong, for it already has a standard. Taiwan has to keep paying a high cost in converting Tongyong to Hanyu. The win-win situation that Tongyong supporters hope for is not possible.

However, a likely direction towards reconciliation lies in the analogy of VHS tapes by Yu Bor-chuan (余伯泉). If Tongyong's 9% to 15% difference is enough symbolism for its supporters, then we shall seek the absolute smallest difference towards zero in our efforts for reconciliation. Furthermore, if what Yu Bor-chuan (余伯泉) and Tongyong supporters seek is Taiwan's own local "brand" of VHS tapes of the same international standard specifications, then we can surely find a satisfactory local "brand". We can insist on using an indigenized, local, uniquely Taiwan brand, i.e., *Taiwan Pinyin*, and that in terms of its specifications, we keep the 85% of its contents that overlaps with the international standard and revise only the 15% difference. The term *Hanyu Pinyin* can be avoided if at all possible. Rather, *Taiwan Pinyin* is agreed unanimously to follow the *International Standard Pinyin System of Chinese*. It has nothing to do with China. We urge the Executive Yuan to take two immediate measures: first, require all local governments to use *Taiwan Pinyin* as the only pinyin standard; second, revise the 15% difference to be completely consistent with the international standard.

7. CONCLUSION

Taiwan's pinyin standard, which functions as an information interface, should be based on the English alphabets and aims at global acceptance. The decision-makers should fully recognize the characteristics of network effect, path dependence, and lock-in associated with such information systems and put Taiwan's long-term economic considerations above all else. Thus, given the fact that Hanyu is the most globalized pinyin system and has been accepted internationally as the sole standard for Chinese pinyin, it should be the obvious and much preferred choice. Using the same criteria, we can easily rule out NPS and IPA because neither is based on the English alphabets. Tongyong, among all pinyin competitors, has the lowest current market share worldwide and thus would incur the highest switching cost if Taiwan and the rest of the world were to accept it as the standard. For this reason, its chance for being accepted worldwide as the single standard or as a co-existent standard besides Hanyu is highly unlikely, if not impossible.

The emotional and political factors have led Taiwan into a dilemma: the choice of Hanyu means a high cost politically; the choice of Tongyong means a high cost economically. Little wonder even Li Yuan-zhe (李遠哲), former president of Academia Sinica, later changed his support for Hanyu and chose to be vague. The DPP government has made a difficult but predictable choice, but the controversy is not settled, giving rise to “one country two systems”. Perhaps now that the system of national referendum is in place, some might suggest that the pinyin issue be decided this way.²⁵ However, legislators and average citizens are alike in their lack of understanding of this issue, so if the issue is put to a vote, people would be inclined to vote along political lines. Molho (1997) in his book *The Economics of Information: Lying and Cheating in Markets and Organizations*, points out that in the process of decision making, if any party involved misleads, the outcome is often not in the interest of any party involved, itself included. Scholars, politicians, and intellectuals that do care about this country should demonstrate the confidence and tolerance of the people of new nation, working towards reconciliation on this issue through public discussions and debates. After all Tongyong and Hanyu have 85% to 91% in common; the existing difference is more symbolic than substantial. The way of reconciliation should follow the two principles outlined earlier, “local brand; global standard”. The former reduces the political cost, and the latter eases the economic cost.

In 1992 when Bill Clinton ran for the US president, posted everywhere in the election headquarters was a sign saying *It's the economy, stupid*. In the not too distant future, the old political maps will be overshadowed by the newly-formed economic alliances and thus economic competition and cooperation will become more important than political competition and cooperation (e.g., Arthur 2000). Thurow (2004), a well-known economist, stresses that the ability for a nation's people to cooperate is a good indication of a nation's economic performance. It so happens that Thurow uses a language-related example: five thousand years ago, ancient Egypt created the world's first writing system and thus was able to establish itself as the strongest and richest country in the world at the time. And, in order to establish a writing system, the most important criterion is to establish consensus among the people using it and thus decide collectively and cooperatively a symbolic system for language.

The issue of Taiwan's pinyin standardization must be settled with internal as well as international considerations, for pinyin serves as an information interface between Taiwan and the rest of the world. Unfortunately, Taiwan has been divided rather than united in the pinyin issue, like so many other issues. Indeed, the pinyin issue should be on a par with the issue of English as an official language: there should be more economics and less politics, more cooperation and less in-fighting. Regardless of Taiwan's choice, the nature of interface of the pinyin system remains, and the nature of increasing returns of information systems remains. Thus, the global free market will be the ultimate and merciless judge on Taiwan's choice.

²⁵ For example, Wang Hsu Samuel (王旭) (2001) suggests that the academia propose two to three pinyin systems to the legislature, which then settle the issue by a vote.

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Appendix
List of Chinese Names Cited

Names in the first column are the forms cited in the paper and should also be the exact Romanization used by its bearer. However, in cases where I was unable to contact the individual him/herself, other sources are used, for example books written the person or web pages citing the person's works. Once again, I can only apologize to those whose names are not Romanized exactly the way they personally do.

<i>Name in actual use</i>	<i>Name in Hanyu Pinyin</i>	<i>Name in Chinese</i>
Ang Uijin	Hong Weiren	洪惟仁
Chan Hui-chen	Zhan Huizhen	詹惠珍
Chang Claire Shuen-huei	Zhang Xunhui	張郇慧
Cheng Chin-Chuan	Zheng Jinquan	鄭錦全
Chang Hsueh-Chien	Zhang Xueqian	張學謙
Chen Hongchang	Chen Hongchang	陳弘昌
Chen Mengchang	Chen Mengzhang	陳孟彰
Chen Shui-Bian	Chen Shuibian	陳水扁
Chen Stephen S. F.	Chen Xifan	陳錫蕃
Cheng Robert Liang-wei	Zheng Liangwei	鄭良偉
Chiang Wen-Yu	Jiang Wenyu	江文瑜
Chiu Iau-Chu	Qiu Yaochu	邱耀初
Chu Cyrus Chin Yi	Zhu Jingyi	朱敬一
Chuang Tyng-Ruey	Zhuang Tingrui	莊庭瑞
Dong Zhongsi	Dong Zhongsi	董忠司
Fan Wen-fang	Fan Wenfang	范文芳
Goh Yeng-Seng	Wu Yingcheng	吳英成
Hsiao Su-ying	Xiao Suying	蕭素英
Hsin Shih-Chang	Xin Shichang	信世昌
Ho Dah-an	He Daan	何大安
Hsu Chun-Nan	Xu Junnan	許鈞南
Hsu Wen-Lian	Xu Wenlian	許聞廉
Huang Chu-Ren	Huang Juren	黃居仁
Huang Jong-Tsun	Huang Rongcun	黃榮村
Huang Kuo-yen	Huang Guoyen	黃國彥
Huang Sisiang Ng Hisiong	Huang Sixiang	黃晞祥
Huang Shuanfan	Huang Xuanfan	黃宣範
Jen Theresa Chang-whei	Ren Changhui	任長慧
Ko, Ming-Tat	Gao Mingda	高明達
Kuo Li-Hsin	Guo Lixin	郭力昕

Lee Ching-Tse	Li Qingze	李清澤
Lee Yuan Tseh	Li Yuanzhe	李遠哲
Lee Lucy Te-chu	Li Dezhu	李德竹
Li Paul Jen-Kui	Li Rengui	李壬癸
Li Xi	Li Xi	李璫
Lien Chinfa	Lian Jinfa	連金發
Lin Aihua	Lin Aihua	林愛華
Lin Chin-Hung	Lin Jinhong	林錦鴻
Lin Chuan	Lin Quan	林全
Lin Meirong	Lin Meirong	林美容
Lin Tsong-Minn	Lin Congmin	林聰敏
Luo Jau-Jin	Luo Zhaojin	羅肇錦
Mei Tsu-Lin	Mei Zulin	梅祖麟
Ng Bitsu	Huang Meici	黃美慈
Ong Iok-tek	Wang Yude	王育德
Qiu Wenxi	Qiu Wenxi	邱文錫
Shieh Jhy-Wey	Xie Zhiwei	謝志偉
Shih Cheng-Feng	Shi Zhengfeng	施正鋒
Sun Jackson Tian-shin	Sun Tinaxin	孫天心
Tan H. Kok	Chen Xianguo	陳憲國
Tang Ting-chi	Tang Tingchi	湯廷池
Teng Shou-Hsin	Deng Shouxin	鄧守信
Ting Pang-Hsin	Ding Bangxin	丁邦新
Tiunn Jû-hông	Zhang Yuhong	張裕宏
Tseng Chin-Chin	Zeng Jinjin	曾金金
Tseng Chiu-yu	Zheng Qiuyu	鄭秋豫
Tseng Shu-Chuan	Zeng Shujuan	曾淑娟
Tzeng Ovid Jyh-Lang	Zeng Zhilang	曾志朗
Wan I-ping	Wan Yiping	萬依萍
Wang Hsu Samuel	Wang Xu	王旭
Wang William Shi-Yuan	Wang Shiyuan	王士元
Xu Hezhong	Xu Hezhong	許鶴鐘
Yang Ch'ing-ch'u	Yang Qingchu	楊青矗
Yeh Te-Ming	Ye Deming	葉德明
Yu Bor-chuan	Yu Boqaun	余伯泉

「全球化」與「在地化」： 從新經濟的角度看台灣的拼音問題

何萬順

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摘要

台灣中文拼音標準之僅存爭議在於採用通用拼音或漢語拼音。前者有著強烈「在地化」的象徵意義，後者有最廣泛「全球化」的實質分佈。本文針對拼音系統的訊息介面功能，從資訊時代新經濟的角度探討台灣的選擇。檢視新經濟中「利益增長」與「路徑取決」的特質，全球「市佔率」最高且已「標準化」的漢語拼音是最合理的選擇。採行通用拼音需付出雙重的轉換代價；且通用 85%與漢語重疊，若作為政治符號反而造成台灣的分裂。拼音議題的情緒化與政治化已使得台灣的選擇落入了兩難的局面：選擇漢語拼音，付出不必要的政治代價；選擇通用拼音，付出不必要的經濟代價。因此和解的方向在於將台灣拼音標準「在地化品牌，全球化規格」推展至極限。

關鍵詞：台灣，拼音，漢語拼音，通用拼音，新經濟，全球化，在地化