Antikythera Publications

DATABASE DESIGN NOTE SERIES

Exploring Tones (My, My, My …)
Multi-Script Database Series #10

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Tones are an integral component of some of the languages discussed earlier in this series; because tones primarily affect the languages as spoken, however, tones were for the most part ignored in previous notes – relegated to sidebars and footnotes – because only information that could be stored on disk was considered of interest to data conservators.

On 18 January of 2022, the release of a new and fascinating book, *Kingdom of Characters – The Language Revolution that made China Modern*, by Dr. Jing Tsu of Yale University (Riverhead Books; ISBN 9780735214729) offered a fascinating (and apparently extended) example of a century-old demonstration of the importance of tones in Mandarin Chinese speech, and this brought back memories of first learning a tonal language more than fifty years ago.

Because tones don't relate directly to the responsibilities of database professionals, there are really no prerequisites for appreciating the material that follows – aside from perhaps a sense of humor. To get the most benefit, however, at least an overview of two of the previous notes in this Multi-Script Database Series – *Exploring Complex Text Layout (#2)* and *Exploring Han Script: Globe-Trotting* 汉字 *and its Kanji Cousin (#7)* – could be useful.

Revised and Updated March 2022 for public distribution.

ไม้ใหม่ไหม้, ไหม?

獅石　獅石

Database Design Note Series on maintaining Multi-Language/Multi-Script Databases

(All available for download from www.AntikytheraPubs.com/i18n.htm)

Exploring Tones — My, My, My, My, what yummy lions we have here! [1]

Several of the world's languages are characterized as "tonal," which is to say that pitch changes are used when speaking them and – more importantly – the relative changes in pitch as they are spoken are often critical to conveying the speaker's meaning and, likewise, to the ensure a listener's understanding.

As mentioned earlier, because tones are related to languages as they are spoken rather than as they are written, it might seem that tones would not necessarily be of much concern to those responsible for the maintenance and integrity of multilingual data stores. To a certain extent this is true, but there are several reasons why at least a minimal familiarity with the world of tones is worth exploring. Although it might be surprising to a westerner, more people speak tonal languages than non-tonal ones.

Because a variety of written characters or symbols may be used to indicate either the tones themselves or changes in tone, proper storage of such glyphs could in some instances be more critical to interpreting text correctly than "normal" characters would be.

Probably the least important reason for exploring tones, and one that admittedly borders on the juvenile,[2] is that the examples often used to teach a language's tones to new learners can be quite entertaining.

Obviously in an introductory document of this size, and without any accompanying audio, it isn't possible to cover the subject of tones more than superficially. Here we'll consider it sufficient to limit the example phrases to Thai and Mandarin: these will illustrate all a data professional needs to know about handling tones in a database. Before beginning to explore Thai tones, however, we need to dispel the notion that 'western' languages are atonal – we most definitely use tones in English, just in a different manner.

Say the sentence *"do you have to go today"?* out loud and consider its meaning. Then repeat the phrase several times, each time placing the emphasis on a different word.

PHRASE WITH *EMPHASIS*	CONTEXT, MEANING, INTERPRETATION, IMPLICATION
1 *Do* you have to go today?	No really, *do* you? Or is that just an excuse for you to bail out?
2 Do *you* have to go today?	Why can't someone else go? Why does it have to be you?
3 Do you *have* to go today?	Is it really necessary that you go? Similar, but not identical sense, to #1.
4 Do you have to *go* today?	Can't you just call instead?
5 Do you have to go *today*?	Today of all days! Can't you leave on some later day?
6 You have to go! *Today*!	Quit procrastinating. Buck up! Get it over with.

Of course the tonal changes here are obscured by the emphasis, and sometimes even by a speaker's regional accent, but if you listen carefully it doesn't take long before tonal changes become apparent.

Try to isolate and compare the pitch of the syllable 'day' in the third and fifth examples, for example.

Do the same with the word 'go' in the fourth and sixth examples. In both cases, try to ignore any accents.

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1   Yes, there is meaning to this – read on.

2   But, honestly, don't we all regress from time to time? (Later, you'll see how one expresses 'from time to time' in Mandarin, so keep reading)

The Legend of Sir Shi and the Stone Lions …

獅   狮

… as related in Dr. Jing Tsu's book *Kingdom of Characters – The Language Revolution that made China Modern*.

If you have a friend who can read this artificial Chinese tale out loud for you, please convince him or her to do so. Otherwise, all will be revealed in a few pages.

石室詩士施氏,嗜獅,誓食十獅。氏時時適市視獅。十時, 氏適市, 適十碩獅適市。是時, 氏視是十獅,恃十石矢勢,使是十獅逝世。氏拾是十獅屍,適石室。石室濕,氏使侍試拭石室。石室拭,氏始試食是十獅屍。食時, 始識是十碩獅屍實十碩石獅屍。是時, 氏始識是實事實。試釋是事。 Zhao Yuanren (趙元任 Yuen Ren Chao)

Listen carefully and it won't take long before at least subtle changes in tone like the rise in pitch on 'day' in example five. The pitch difference between 'go' in the fourth and sixth examples will soon follow.

Prosodic and Phonemic Tones

So tones, though subtle, *are* used in English and most western languages! But this incidental usage doesn't warrant the designation "tonal language."

This use of tones is referred to as *prosodic*. Prosodic tones, while often occuring within a single word, don't actually influence the meaning of the word so much as that of the entire phrase or sentence in which they occur.

The meaning of 'day' in the third example is no different than its meaning in the fifth example; it is the sense of the entire sentence that is different.

What defines a "tonal language" is its use of *phonemic* tones. Phonemic tones apply to individual words. Phonemic tones change that word's meaning.

As an example, the Thai phrase มานี่, which could be transliterated for an English speaker as "มา=mah นี่=nee," means "come here." A similar sounding Thai word for horse is ม้า (mah), while a Thai infant might cry ม้าม้า, which means (and would be transliterated as) "MaMa."

In the context of a sentence, it is likely that most listeners could determine whether a speaker was referring to his mother or his horse, but it is obvious that those squiggles above the มา – more formally known as diacritics, and more precisely as tone markings in Thai – are often important. Not all tonal distinctions are as clear-cut as those between horse and Mom!

In order to provide the necessary material for those who wish to delve into the "my, my, my …" examples, we'll first present a chart of Thai tones, and then a mini-dictionary of important words in the examples. But it isn't necessary to spend time on either of these to enjoy the tutorial phrases, so feel free to jump to page 6 if you're just here for the entertainment.

The Thai Language Tones

[3]

	Middle/Neutral Tone	Low Tone[NOTE]	Falling Tone[NOTE]	High Tone	Rising Tone
Tone Name (Thai)	เสียงสามัญ	เสียงเอก	เสียงโท	เสียงตรี	เสียงจัตวา
Transliteration (English)	sĕeang săhman	sĕeang èk	sĕeang toh	sĕeang dtree	sĕeang jaht'wah
Tone Indicator for Transliteration	none	à	â	á	ǎ
Tone Indicator Diacritic Mark …	none	่	้	๊	๋
… Glyph Name (Thai)	none	ไม้เอก	ไม้โท	ไม้ตรี	ไม้จัตวา
… Glyph Name (English)	none	Mái Ek	Mái Toh	Mái Dtree	Mái Jàht'wàh
… Unicode Hex—Dec Values	none	U+0E48—3656D	U+0E49—3657D	U+0E4A—3658D	U+0E4B—3659D
… Thai TIS-820 IME Keyboard Key	none	j	h	⇧Shift + U	⇧Shift + J

NOTE Thai consonants are categorized as Low, Mid, or High class. When paired with a Low Consonant, Mai Ek (่) indicates a falling tone and Mai Toh (้) indicates a high tone. High and Rising tone marks only appear with Mid class consonants.

The sharp-eyed among you will have noticed that, in the discussion of Mom and the Horse, the consonant ม (Thai equivalent of a Latin *m*) is placed before the vowels that represent the various soundings of 'a.' In the Thai word for tone mark (ไม้ above and in the following table) however, the vowel ไ (an ái sound) is placed before the ม even though it is sounded after it. This behavior, actually not unusual, is described in *Character Reordering and Placement* on page 11 of an earlier publication in this series titled *DDN-2 – Exploring Complex Text Layout* so not repeated here.

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3   https://thaiwithgrace.com/thai-tones/ is a good reference for learning about Thai tones.

Thai Vocabulary for Humorous Tone Phrases on Page 6

#	ENGLISH MEANING	THAI SCRIPT	TRANSLITERATION	COMMENTS
1	burn	ไหม้	mâi (falling tone)	Colloquial for เผาไหม้ (combust); ห (h) is a high consonant, thus ้ here indicates a falling tone.
2	count, calculate	มาย	maai (neutral tone)	
3	Chiang Mai	เชียงใหม่	Chiang Mài (low tone)	Second largest city in Thailand City; literally 'City New,' since it was built to replace Chiang Rai.
4	have, possess	มี่	mee	Illustrates an upper diacritic vowel.
5	law, note	หมาย	măai (rising tone)	Often used in combination words; the ่ tone mark is not used, since ม (m) is a low consonant.
6	Madam (widow)	ม่าย	mâai (high tone)	The honorific for a widowed woman; because of their low consonants, #7 and #13 are homonyms of ม่าย.
7	mark, marking	ไม้	mái (high tone)	Mark; e.g. 'tone mark.' ม (m) is a low consonant, thus ้ indicates a high tone. Homonym of 'wood'.
8	new, fresh, again …	ใหม่	mài (low tone)	When referring to wood, ใหม่ indicates 'green' or newly cut, un-dried timber.[4]
9	not	ไม่	mâi (falling tone)	ม (m) is a low consonant, thus ่ (mái ek) here indicates a falling tone.
10	…, right?	ไหม	măi (neutral tone)	This is similar to the English usage of adding "no" or "right" to the end of a declarative sentence, no?
11	silk	ไหม	măi (neutral tone)	
12	why	ทำไม	tammai (neutral tone)	
13	wood	ไม้	mái (high tone)	Also see 'mark' above, a Thai homonym. ม (m) is a low consonant, thus ้ here indicates a high tone.

Learning Thai Tones

Although I had studied Latin, Greek, and a bit of German while in school, my first exposure to a tonal language was with Thai more than fifty years ago.

Greek had a different alphabet, of course, but the Thai alphabet was truly intimidating: 44 consonants, and anywhere from 15 to 32 vowels depending on how you counted – far in excess of 'a, e, i, o, u, and sometimes y.' Even worse, Thai vowels might appear before, after, above, or below other letters. Differences between ด, ค, ศ, and ด were confounding; ก, ถ and ภ, to say nothing of ฤ and ฦ, seemed designed to confuse a reader[5]. Characters such as ล and ส are totally unrelated. โ is not a capital ร (Thai has no such concept). Unlike 'y,' which could be a vowel *or* a consonant, a Thai ำ was both at once.

But the Thai alphabet soon became familiar enough. Tones, though, were a totally new concept. In order to come to grips, one needed to learn some tutorial phrases, one of which – "My, my, my, my, my" – we were apparently supposed to sing with what sounded like a rather odd melody.

Compounding the difficulty in coming to grips with tones, it was 1968.

One of the biggest records on the pop charts in Bangkok that year was Tom Jones' Delilah[6], whose refrain "My, my, maaaii, Delilah" was an insidious ear worm that clashed with any ability to concentrate on what seemed like identical lyrics with a less catchy melody. How could anyone make sense of this?

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4   While the vowels ใ (sàrà ai mái málai) and ไ (sàrà ai mái múan) have exactly the same 'ai' sound, ใ is used in only twenty words in Thai. So of course, it's included here!

5   … though, to be fair, they're probably no more similar than g and q or d and b likely seem when first encountered by a non-English reader.

6   Lyrics by Les Reed, Barry Mason, Jordi Bastard; so far as I'm aware, none of them could read Thai and only Tom Jones himself actually visited Bangkok.

Humorous Thai Tone Tutorial Phrases

Thai Phrase 1:	ไม้ใหม่ไหม้,ไหม?			
English Translation:	Does fresh wood burn?			
Four Thai Words:	ไม้ word 13	ใหม่ word 8	ไหม้, word 1	ไหม? word 10
English Pronunciation:	mái (high tone)	mài (low tone)	mâi (falling tone)	măi (neutral tone)
Literal Translation:	wood	fresh, new	burn	correct?

Thai Phrase 2:	ไม้ใหม่ไม่ไหม้,ไหม?				
English Translation:	Green wood doesn't burn, does it?				
Five Thai Words:	ไม้	ใหม่	ไม่ word 9	ไหม้,	ไหม?
English Pronunciation:	mái (high tone)	mài (low tone)	mâi (falling tone)	mâi (falling tone)	măi (neutral tone)
Literal Translation:	wood	fresh, new	not	burn	correct?

Thai Phrase 3:	ม่าย,ไม้ใหม่ไม่ไหม้ไหม?					
English Translations:	Madam, isn't the new wood burning? — Madam, doesn't new wood burn?					
Six Thai Words:	ม่าย, word 5	ไม้	ใหม่	ไม่	ไหม้	ไหม?
English Pronunciation:	mâai (low tone)	mái (high tone)	mài (low tone)	mâi (falling tone)	mâi (falling tone)	măi (neutral tone)
Literal Translation:	Madam,	wood	fresh, new	not	burn	correct?

Thai Phrase 4:	ม่าย,ทำไมไม้ใหม่ไม่ไหม้?					
English Translations:	Madam, why isn't the new wood burning? — Madam, why doesn't green wood burn?					
Thai Words:	ม่าย,	ทำไม word 12	ไม้ word 13	ใหม่	ไม่	ไหม้?
English Pronunciation:	mâai (low tone)	tammai (neutral tone)	mái (high tone)	mài (low tone)	mâi (falling tone)	mâi (falling tone)
Literal Translation:	Madam,	why	wood	fresh, new	not	burn?

Thai Phrase 5:	ที่เชียงใหม่มีไหมใหม่ไหม?					
English Translations:	Is there new silk in Chiang Mai? — There's new silk in Chiang Mai, no? — You can get new silk in Chiang Mai, right?					
Thai Words:	ที่	เชียง ใหม่ word 3	มี word 4	ไหม word 11	ใหม่	ไหม?
English Pronunciation:	tee	Chiang Mài (low tone)	mee	măi (neutral tone)	mài (low tone)	măi (neutral tone)
Literal Translation:	At	Chiang Mai	have	silk	new	no?

So, we can string together six Thai words that differ only in their tone to form an understandable sentence. Now prepare for a great leap forward (no pun intended).

We've now seen a Thai sentence with six consecutive words that, differing only in tone, all sound like "my" to an uninitiated western listener. That's a fairly typical length of similar learning ditties found in other tonal languages.

Mandarin also has some tonally different "my" sounds[7]: the hànzì (word) meaning to buy is 买 (pronounced 'mǎi'), while 卖 ('mài') means to sell.[8]

Although 买 and 卖 are good examples of how different tones can reverse the meaning of spoken words, Mandarin offers some much more widely used consonant-vowel pairs that appear not only as tonally different words, but tonally identical homonyms with completely different appearance.

But first, as we did with Thai, we'll introduce the Mandarin[9] tones.

The Mandarin Language Tones

sì shēng (TRADITIONAL: 四聲) – (SIMPLIFIED: 四声)

Tone Name (English)	First Tone	Second Tone[NOTE]	Third Tone	Fourth Tone	Fifth/No Tone
Tone Name (Traditional Chinese)	第一聲 NOTE 1	第二聲 NOTE 1	第三聲 NOTE 1	第四聲 NOTE 1	輕聲
Tone Name (Simplified Chinese)	第一声 NOTE 1	第二声 NOTE 1	第三声 NOTE 1	第四声 NOTE 1	轻声
Pīnyīn Transliteration w/spaces	dì yì shēng	dì èr shēng	dì sān shēng	dì sì shēng	qīng shēng
Literal Translation (English)	Ordinal 1 (1st) sound	Ordinal 2 (2nd) sound	Ordinal 3 (3rd) sound	Ordinal 4 (4th) sound	light/soft sound
Inadequate description of tone	high, level	rising	low-falling-rising	falling	neutral
Example Word (Traditional - Simplified)	媽 - 妈[10]	麻	媽 - 马	媽 - 骂	媽 - 吗
Example Word w/Pīnyīn Transliteration	mā NOTE 2 (mother)	má NOTE 2 (hemp)	mǎ NOTE 2 (horse)	mà NOTE 2 (scold)	ma (yes)

NOTE 1   Alternate tone names seen in some grammars are: 阴平 yīnpíng (first tone), 阳平 yángpíng (second tone), 上声 shǎngshēng (third tone), and 去声 qùshēng (fourth tone).

The 聲 - 声 (shēng) converts a cardinal number (e.g. "1") to an ordinal expression, e.g. "1st"

NOTE 2   In some older material, these are sometimes written as ma1, ma2, ma3, and ma4. Other material assigns colors to each tone, but there seem to be no standards whatever for these.

Although the Mandarin and Thai words for horse are similar, they are not etymologically related. Likewise the similar word 'Ma' for Mother is found in virtually all languages.

To hear these tones, go to https://www.thoughtco.com/four-tones-of-mandarin-2279480

In an effort to demonstrate that it wasn't possible – as some claimed at the time – to write Chinese with an alphabet that had no tone markings, the scholar Zhào Yuánrèn (3 Nov 1892 - 25 Feb 1982) produced a short tale that, written in Latin characters without tones, would be unintelligible.

Zhào used thirty-three legitimate hànzì variants, most more than once – and all of which sound to an uninitiated western listener like 'shee' – in the first version of his parable, which seems to have run to over ninety words.

Here, we'll present an even longer version – running to over a hundred words.

As with the Thai examples, we'll begin with a vocabulary – this time in two separate tables – one ordered by Unicode value, the second by tone – making our presentation of the parable a bit easier (or at least more convenient) to follow. As with the earlier Thai example, feel free to skip the detailed analysis and jump directly to *The Legend of Sir Shi and the Lions* on page 10.

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7   It should be pointed out that Thai phonemic tones are explicitly written using the tone marks discussed above; tones in Chinese are not written, but are mostly implicit.

8   As an exercise, stare carefully at the two hànzì 买 and 卖 and note that they, too, are as subtly different visually to a new learner as they are tonally.

9   Although 'Chinese Script' is reasonably universal, the pronunciation can vary widely across at least thirteen distinguishable Chinese languages and/or dialects.

10   Recall the 妈 hànzì (mother) with its radical 女 (female) and semantic element 子(child) from page 9 of *Exploring Han Script: Globe-Trotting 汉字 and its Kanji Cousin – Multi-Script Database Series #7*. To keep the vocabulary to a minimum, 子 will appear as a featured character in another short example on page Error: Reference source not found

"Sir Shi" Vocabulary — Unicode Order Listing

Traditional and Simplified Hànzì Glyphs, Unicode Hex Value(s), HSK Sequence[11]; Ruby representation, Pīnyīn with Numeric and Diacritic Tone markings, and Definitions

TC	SC	Unicode	HSK	Ruby	Pīnyīn	Definition/Comments	
世	世	U+4E16	[A] 693	shì 世	4:shì	generation; life, lifetime, age	1
事	事	U+4E8B	[A] 429	shì 事	4:shì	affair; matter; thing; item	2
使	使	U+4F7F	[A] 918	shǐ 使	3:shǐ	envoy, messenger; employ, make	3
侍	侍	U+4F8D		shì 侍	4:shì	serve, attend upon	4
勢	势	U+52E2 U+52BF	[B]	shì 势	4:shì	force, power, influence 222.1	5
十	十	U+5341	[A] 7	shí 十	2:shí	ten	6
嗜	嗜	U+55DC		shì 嗜	4:shì	be addicted to, be fond of	7
士	士	U+58EB	[B] 35	shì 士	4:shì	scholar, imperial class member	8
始	始	U+59CB		shǐ 始	3:shǐ	begin, start; then; only then 222.2	9
室	室	U+5BA4	[A]	shì 室	4:shì	room, family or clan; (surname) 224b	10
實	实	U+5BE6 U+5B9E	[A] 858	shí 实	2:shí	true, real; honest; solid	11
屍	尸	U+5C4D U+5C38	r67 440	shī 尸	1:shī	corpse; put a corpse on display	12
市	市	U+5E02	[A] 766	shì 市	4:shì	market, city, city center, downtown	13
恃	恃	U+6043		shì 恃	4:shì	to rely on	14
拭	拭	U+62ED		shì 拭	4:shì	to wipe	15
拾	拾	U+62FE	[A] 1040	shí 拾	2:shí	pick up, arrange; collate	16
施	施	U+65BD	[B]	shī 施	1:shī	give, grant, bestow; (surname); fertilize, spread, spray (usually 施肥) 245	17
是	是	U+662F	[A] 327	shì 是	4:shì	be, to be, is, are, am; yes	18

TC	SC	Unicode	HSK	Ruby	Pīnyīn	Definition/Comments	
時	时	U+6642 U+65F6	[A] 573	shí 时	2:shí	time, o'clock, when	
時時	时时	U+6642 U+65F6		shí shí 时时	2:shí	from time to time; always	
氏	氏	U+6C0F	[C] 276	shì 氏	4:shì	clan name, Mr. (honorific)	
濕	湿	U+6FD5 U+6E7F	[B]	shī 湿	1:shī	wet, moist, damp	
獅	狮	U+7345 U+72EE	[B]	shī 狮	1:shī	lion	
矢	矢	U+77E2	r148 82	shǐ 矢	3:shǐ	arrow; dart; straight	
石	石	U+77F3	[B] 749	shí 石	2:shí	stone (also the Radical in large 硕 shuò)	
碩	硕	U+78A9 U+7855		shuò 硕	3:shí shuò	large; shí is considered a variant form of shuò.	
視	视	U+8996 U+89C6	[A] 888	shì 视	4:shì	look at, regard, inspect	
試	试	U+8A66 U+8BD5	[A] 1030	shì 试	4:shì	try; test, experiment	
詩	诗	U+8A69 U+8BD7	[B]	shī 诗	1:shī	poem, poetry 233	
誓	誓	U+8A93		shì 誓	4:shì	vow, oath, pledge	
識	识	U+8B58 U+8BC6	[A] 628	shí 识	2:shí	to know; to realize; knowledge	
逝	逝	U+901D	[C]	shì 逝	4:shì	die, pass 262	
適	适	U+9069 U+9002	[A] 1053	shì 适	4:shì	fit, suitable, proper; follow, chase; (surname)	
釋	释	U+91CB U+91CA	[B]	shì 释	4:shì	to explain or release; the Buddha 220	
食	食	U+98DF	[A] 413	shí 食	2:shí	food, to eat; (餵食 shí sì is to feed)	
						Counts: 5 shī; 7 shí; 3 shǐ; 18 shì	

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11 Acronym for Hànyǔ Shuǐpíng Kǎoshì (汉语水平考试), the Chinese Proficiency Tests used to evaluate non-native speakers for university placement. The [A], [B] and [C] indicate the test levels; the numbers indicate the ranking of the 1,067 most frequent hànzì listed in the 2013 edition of Tuttle's standard "Reading and Writing Chinese."

"Sir Shi" Vocabulary — Tone Order Listing

Traditional and Simplified Hànzì Glyphs, Unicode Hex Value(s), HSK Sequence; Ruby representation, Pīnyīn with Numeric and Diacritic Tone markings, and Definitions

TC	SC	Unicode	HSK	Ruby	Pīnyīn	Definition/Comments
屍	尸	U+5C4D U+5C38	r67 440	尸	1:shī	corpse; put a corpse on display
施	施	U+65BD	[B]	施	1:shī	give, grant, bestow; (surname); fertilize, spread, spray (usually 施肥) 245
濕	湿	U+6FD5 U+6E7F	[B]	湿	1:shī	wet, moist, damp
獅	狮	U+7345 U+72EE	[B]	狮	1:shī	lion
詩	诗	U+8A69 U+8BD7	[B]	诗	1:shī	poem, poetry 233
十	十	U+5341	[A] 7	十	2:shí	ten
實	实	U+5BE6 U+5B9E	[A] 858	实	2:shí	true, real; honest; solid
拾	拾	U+62FE	[A] 1040	拾	2:shí	pick up, arrange; collate
時	时	U+6642 U+65F6	[A] 573	时	2:shí	time, o'clock, when
時時	时时	U+6642 U+65F6		时时	2:shí	from time to time; always
石	石	U+77F3	[B] 749	石	2:shí	stone (also the Radical in large 碩)
碩	硕	U+78A9 U+7855		硕	3:shí 3:shuò	large; shí is considered a variant form of shuò.
識	识	U+8B58 U+8BC6	[A] 628	识	2:shí	to know; to realize; knowledge
食	食	U+98DF	[A] 413	食	2:shí	food, to eat; (餵食 sì is to feed)
使	使	U+4F7F	[A] 918	使	3:shǐ	envoy, messenger; employ, make
始	始	U+59CB		始	3:shǐ	begin, start; then; only then 222.2
矢	矢	U+77E2	r148 82	矢	3:shǐ	arrow; dart; straight
世	世	U+4E16	[A] 693	世	4:shì	generation; life, lifetime, age
事	事	U+4E8B	[A] 429	事	4:shì	affair; matter; thing; item
侍	侍	U+4F8D		侍	4:shì	serve, attend upon
勢	势	U+52E2 U+52BF	[B]	势	4:shì	force, power, influence 222.1
嗜	嗜	U+55DC		嗜	4:shì	be addicted to, be fond of
士	士	U+58EB	[B] 35	士	4:shì	scholar, imperial class member
室	室	U+5BA4	[A]	室	4:shì	room, family or clan; (surname) 224b
市	市	U+5E02	[A] 766	市	4:shì	market, city, city center, downtown
恃	恃	U+6043		恃	4:shì	to rely on
拭	拭	U+62ED		拭	4:shì	to wipe
是	是	U+662F	[A] 327	是	4:shì	be, to be, is, are, am; yes
氏	氏	U+6C0F	[C] 276	氏	4:shì	clan name, Mr. (honorific)
視	视	U+8996 U+89C6	[A] 888	视	4:shì	look at, regard, inspect
試	试	U+8A66 U+8BD5	[A] 1030	试	4:shì	try; test, experiment
誓	誓	U+8A93		誓	4:shì	vow, oath, pledge
逝	逝	U+901D	[C]	逝	4:shì	die, pass 262
適	适	U+9069 U+9002	[A] 1053	适	4:shì	fit, suitable, proper; follow, chase; (surname)
釋	释	U+91CB U+91CA	[B]	释	4:shì	to explain or release; the Buddha 220

The Legend of Sir Shi and the Lions

A line-by-line analysis of the mysterious ancient[12] tone parable (extended 106 character version)
Taken from pages 184-185 of "Kingdom of Characters" by Jing Tsu;
Riverhead Books; ISBN 9780735214729; published January 18, 2022

On the following pages ten tables are presented – one for each sentence in the legend as it appears in *Kingdom of Characters*. This 106 character version is reproduced in the box on the right.

For reference and comparison purposes, the first row of each table gives the ordinal (e.g. 1ˢᵗ, 2ⁿᵈ) for each glyph in Dr. Tsu's version, including contemporary hànzì punctuation.[13] This is followed by the overall cardinal number (e.g. 1, 2) of each hànzì – excluding punctuation – in the entire parable.

Thus, while the second character in row one (1.2 室) is also the second character in the legend, the 11ᵗʰ character in row one (1.11 誓) is the ninth character overall. Similarly, character 1.9 – 獅 (lion) is the eighth character overall and the same as 8.15, which is the 92ⁿᵈ character overall.

The 'T' row in each table shows Traditional Chinese hànzì (characters). The 'S' row displays Simplified hànzì using a Ruby font which adds standard Pīnyīn with tone markings above each character. Highlighted hànzì (e.g. 獅) indicates where traditional and simplified hànzì differ. The fourth line displays the standardized Pīnyīn alone in a more legible size.

The fifth line in each table provides a literal English translation of each hànzì character's meaning. Naturally, some of these are not the most common words in use, but all are intelligible Mandarin.[14]

The sixth line is Jing Tsu's more colloquial English translation. On page 185 of her book, Dr. Tsu remarks: "Romanized without tone marks or indicators, however, it becomes a long string of monotonous gibberish," then presents a series of 106 naked '**shi**'s to mimic those Zhao had used to make the point that Romanization of Chinese Script would require tone indicators.

The callout on the right uses standard pīnyīn with its tone marks, so you can print this page on waterproof paper and practice your tones in the shower.

Earlier and shorter variations of this legend can easily be found on the internet:

https://lyricstranslate.com/en/sh%C4%AB-sh%C3%AC-sh%C3%AD-sh%C4%AB-sh%C7%90-lion-eating-poet-stone.html – This slightly shorter (104 character) version of the tale has a link to an audio recitation in the event you have no Chinese speaking friends.

https://unleashed.bancroftschool.org/3514/a-and-e/a-translation-of-zhao-yuanrens-the-story-of-lion-eating-shi/ – a 94 character version of the legend.

https://www.thechairmansbao.com/5-easy-chinese-tongue-twisters-you-need-to-know-in-mandarin/ — a shorter (92 character) version, but also includes similar examples in other tonal languages, including another 'MaMa' example, this time in Mandarin.

https://www.yellowbridge.com/onlinelit/stonelion.php?characterMode=t, where you are invited to click on any hànzì in this 92 character version to see its definition.

石室詩士施氏,嗜獅,誓食十獅。

氏時時適市視獅。

十時, 氏適市, 適十碩獅適市。

是時, 氏視是十獅, 恃十石矢勢,使是十獅逝世。

氏拾是十獅屍,適石室。

石室濕,氏使侍試拭石室。

石室拭,氏始試食是十獅屍。

食時, 始識是十碩獅屍實十碩石獅屍。

是時, 氏始識是實事實。

試釋是事。

Shí shì shī shì shī shì, shì shī, shì shí shí shī.
Shì shí shí shì shì shì shī.
Shí shí, shì shì shì, shì shí shuō shī shì shì.
Shì shí, shì shì shì shí shī, shì shí shí shǐ shì, shǐ shì shí shī shì shì.
Shì shí shì shí shī shī, shì shí shì.
Shí shì shī, shì shǐ shì shì shì shí shì.
Shí shì shì, shì shǐ shì shí shì shí shī shī.
Shí shí, shǐ shí shì shí shuò shī shī shí shí shuò shí shī shī.
Shì shí, shì shǐ shí shì shí shì shí.
Shì shì shì shì.

---

12 Well, actually only one century has passed since Zhào Yuánrèn (趙元任) concocted his original version of this story in 1916, but since we're having fun here, we're certainly entitled to invoke Samuel Taylor Coleridge's two century old 'suspension of disbelief' concept from 1817.

13 Of course, any actual ancient legend would have had no punctuation characters, but play along.

14 Impressive as they are, the many on-line translation services (Google, Microsoft, Yandex, et.al.) are unable to find the story all that intelligible, but they're not bad.

	1st:1	2nd:2	3rd:3	4th:4	5th:5	6th:6	7th	8th:7	9th:8	10th	11th:9	12th:10	13th:11	14th:12	15th	
T	石	室	詩	士	施	氏	，	嗜	獅	，	誓	食	十	獅	。	A poem scholar is a poet.
S	石	室	诗 (shī)	士 (shì)	施 (shī)	氏 (shì)	，	嗜 (shì)	狮 (shī)	，	誓 (shì)	食 (shí)	十 (shí)	狮 (shī)	。	His family/clan surname sounds like the word 'give.'
P	shí	shì	shī	shì	shī	shì	,	shì	shī	,	shì	shí	shí	shī	.	Literally, he intends to 'make food' of the ten lions
E	stone	room	poem	scholar	give	clan	,	addicted to	lion	,	vow; oath	food	ten	lion	.	

Stone house poet Sir Shi was fond of lions and vowed to eat ten lions.

	1st:13	2nd:14	3rd:15	4th:16	5th:17	6th:18	7th:19	8th
T	氏	時	時	適	市	視	獅	。
S	氏 (shì)	时 (shí)	时 (shí)	适 (shì)	市 (shì)	视 (shì)	狮 (shī)	。
P	shì	shí	shí	shì	shì	shì	shī	.
E	clan	time	time	suitable	city	look	lion	.

時時 (time+time = always; sense of "from time to time")

The gentleman went from time to time to the market, looking for lions.

	1st:20	2nd:21	3rd	4th:22	5th:23	6th:24	7th	8th:25	9th:26	10th:27	11th:28	12th:29	13th:30	14th	
T	十	時	，	氏	適	市	，	適	十	碩	獅	適	市	。	
S	十 (shí)	时 (shí)	，	氏 (shì)	适 (shì)	市 (shì)	，	适 (shì)	十 (shí)	硕 (shuò)	狮 (shī)	适 (shì)	市 (shì)	。	
P	shí	shí	,	shì	shì	shì	,	shì	shí	?	shī	shì	shì	.	进去了 means 'went in'
E	ten	o' clock	,	clan	suitable	city	,	suitable	ten	large	lion	suitable	city	.	

At ten o'clock, it happened that ten big lions arrived at the market.

4a	1st:31	2nd:32	3rd	4th:33	5th:34	6th:35	7th:36	8th:37	9th	10th:38	11th:39	12th:40	13th:41	14th:42	15th
T	是	時	,	氏	視	是	十	獅	,	恃	十	石	矢	勢	,
S	是	时	,	氏	视	是	十	狮	,	恃	十	石	矢	势	,
P	shì	shí	,	shì	shì	shì	shí	shī	,	shì	shí	shí	shǐ	shì	,
E	be	time	,	clan	look	be	ten	lion	,	rely on	ten	stone	arrow	force	,

Thereupon, looking at the ten lions, with the momentum of ten arrows the gentleman brought them to their deaths.

4b	16th:43	17th:44	18th:45	19th:46	20th:47	21st:48	22nd
T	使	是	十	獅	逝	世	。
S	使	是	十	狮	逝	世	。
P	shǐ	shì	shí	shī	shì	shì	.
E	envoy	be	ten	lion	die	generation	.

(part of above line)

You may recall the final 世 (shì) as the first syllable of the word 世界 in '你好世界,' meaning 'Hello, World.'[15]

5	1st:49	2nd:50	3rd:51	4th:52	5th:53	6th:54	7th	8th:55	9th:56	10th:57	11th
T	氏	拾	是	十	獅	屍	,	適	石	室	。
S	氏	拾	是	十	狮	尸	,	适	石	室	。
P	shì	shí	shì	shí	shī	shī	,	shì	shí	shì	.
E	clan	pick up	be	ten	lion	corpse	,	suitable	stone	room	.

尸 (corpse) is a shortened form of 尸体 (shī tǐ), which literally means 'dead body'

He picked up the ten lion corpses and returned to his stone house.

---

15   Assuming of course that you've downloaded the Database Design Note #8 "Keyboard Layouts – Hello World." Literally, 世界 is "generations of the world."

6	1st:58	2nd:59	3rd:60	4th	5th:61	6th:62	7th:63	8th:64	9th:65	10th:66	11th:67	12th	
T	石	室	濕	，	氏	使	侍	試	拭	石	室	。	
S	石	室	湿	，	氏	使	侍	试	拭	石	室	。	试 (try) is a shortened form of 尝试 (cháng shì)
P	shí	shì	shī	，	shì	shǐ	shì	shì	shì	shí	shì	.	
E	stone	room	wet	，	clan	envoy	serve	try	wipe	stone	room	.	

It was damp and he ordered his servant to try wiping it down.

7	1st:68	2nd:69	3rd:70	4th	5th:71	6th:72	7th:73	8th:74	9th:75	10th:76	11th:77	12th:78	13th
T	石	室	拭	，	氏	始	試	食	是	十	獅	屍	。
S	石	室	拭	，	氏	始	试	食	是	十	狮	尸	。
P	shí	shì	shì	，	shì	shǐ	shì	shí	shì	shí	shī	shī	.
E	stone	room	wipe	，	clan	begin	try	food	be	ten	lion	corpse	.

The stone chamber having been cleaned, the gentleman started attempting to eat the ten lions' bodies.

8	1st:79	2nd:80	3rd	4th:81	5th:82	6th:83	7th:84	8th:85	9th:86	10th:87	11th:88	12th:89	13th:90	14th:91	15th:92	16th:93	17th
T	食	時	，	始	識	是	十	碩	獅	屍	實	十	碩	石	獅	屍	。
S	食	时	，	始	识	是	十	硕	狮	尸	实	十	硕	石	狮	尸	。
P	shí	shí	，	shǐ	shí	shì	shí	shuò	shī	shī	shí	shí	shuò	shí	shī	shī	.
E	food	time	，	begin	know	be	ten	large	lion	corpse	true	ten	large	stone	lion	corpse	.

When he ate them, he realized that the ten lions' corpses were actually the bodies of ten big stone lions.

9	1st:94	2nd:95	3rd	4th:96	5th:97	6th:98	7th:99	8th:100	9th:101	10th:102	11th
T	是	時	，	氏	始	識	是	實	事	實	。
S	是	时	，	氏	始	识	是	实	事	实	。
P	shì	shí	，	shì	shǐ	shí	shì	shí	shì	shí	.
E	be	time	,	clan	begin	know	be	true	affair	true	.

Only now did it dawn on him that was the case.

10	1st:103	2nd:104	3rd:105	4th:106	5th
T	試	釋	是	事	。
S	试	释	是	事	。
P	shì	shì	shì	shì	.
E	try	explain	be	affair	.

Go figure.

As noted earlier, the length of the tale of Sir Shi and his taste for lions has grown over the past century from ninety-two characters to one-hundred-four.

Should you feel challenged to increase its length a bit further, the following table provides a few more *shi*s for your consideration.

TC	SC	Unicode	HSK	Ruby	Pīnyīn	Definition/Comments
史	史	U+53F2	[A]917	史	3:shǐ	history, historian; (surname)
失	失	U+5931	[B]83	失	1:shī	to misplace, lose, (usually 失去); fail, be defeated
師	师	U+5E08	[A]	师	1:shī	division (in army); specialist, teacher 223
式	式	U+5F0F	[B]795	式	4:shì	form, fashion, model, style
柿	柿	U+67FF	[B]	柿	4:shì	persimmon 252

TC	SC	Unicode	HSK	Ruby	Pīnyīn	Definition/Comments
示	示	U+793A	[A]899	示	4:shì	sign
蝕	蚀	U+8680	[C]	蚀	2:shí	to lose, erode (usually 侵蚀) 269
豕	豕	U+8C55	r194 502	豕	3:shǐ	pig; pork (archaic?)
飾	饰	U+9970	[C]	饰	4:shì	decorate, adorn; dress up (装饰品) 269
駛	驶	U+9A76	[C]	驶	3:shǐ	to sail, to drive (usually 驾驶) 262

In Closing – The Lion 獅 and the Child 子 Visit Japan ...

In virtually all tonal languages, similar didactic ditties can be found for helping students become accustomed to comprehending, if not necessarily convincingly mimicking, a native speaker's tones. The Thai tone example illustrated the basic concepts, and the Mandarin tour de force – not likely to be topped – showed the variety of otherwise similar words that exist in some tonal languages.

Without going too far afield, it should be noted that tones are not the only vocalizations a student of an unfamiliar language might encounter and, forsimilar didactic purposes, most languages have several common "tongue twisters." Most English speakers are familiar with "She sells sea shells down by the sea shore" for example.

Japanese offers yet another variant: a twelve character Kanji string:

"子子子子子、子子子子子子子"

Unlike the aural repetition of Sir Shi and his lion lunch, this is a purely visual repetition.

Those who have read *Exploring Han Script: Globe-Trotting 汉字 and its Kanji Cousin – Multi-Script Database Series #7*, know that early Japanese scribes adopted many Chinese hànzì as one of several scripts used to write their language, and which they refer to as kanji. The repetitive kanji 子 example given on the left was concocted using common character variants in Japanese.

Both hiragana and katakana variants exist for the kanji 子. Thus, depending on one's sense of humor, the sentence above might be viewed as a legitimate alternative way of writing "猫の子子猫、獅子の子子獅子" using two kanji replacements each of の (hiragana), 猫, and 獅 (other kanji imports). You'll certainly remember 獅 (lion) from the earlier tale of Mr. Shi.

The table below illustrates how the poet Takamura[16] substituted these 子 s.

Takamura's substitutes:	猫	の	子	子猫	、	獅	子	の	子	子獅子
Pronounced as:	neko	no	ko	ko neko	,	shi	shi	no	ko	ko ji shi
Literal English Translation:	cat	's	child/young	child/young cat		lion	female	's	child/young	child/young lion female
Colloquial Translation:	(A) cat's		child	(is a) kitten	;	(a) lioness'			child	(is a) cub.

With that, we bid farewell to our well-tempered Lion, and our brief exploration of tones.

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16   See https://en.wikipedia.org/wiki/Ono_no_Takamura#Takamura_in_later_literature for more about the poet and calligrapher 小野 篁 (Ono no Takamura, 802-852).

Antikythera Publications
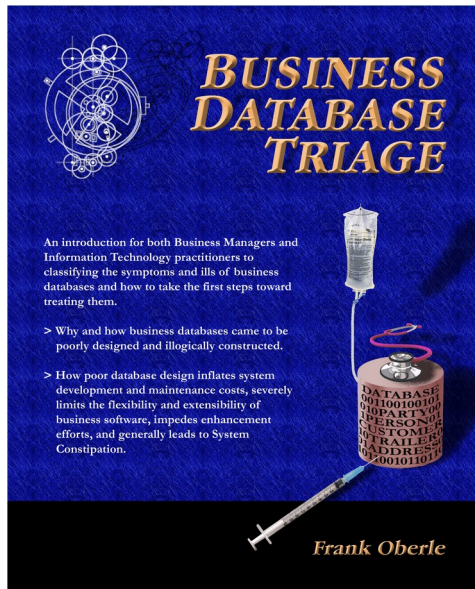
In addition to an ongoing series of Database Design Notes, Antikythera Publications recently released the book "*Business Database Triage*" (ISBN-10: 0615916937) that demonstrates how commonly encountered business database designs often cause significant, although largely unrecognized, difficulties with the development and maintenance of application software. Examples in the book illustrate how some typical database designs impede the ability of software developers to respond to new business opportunities – a key requirement of most businesses.

A number of examples of solutions to curing business system constipation are presented. Urban legends, such as the so-called object-relational impedance mismatch, are debunked – shown to be based mostly on illogical database (and sometimes object) designs.
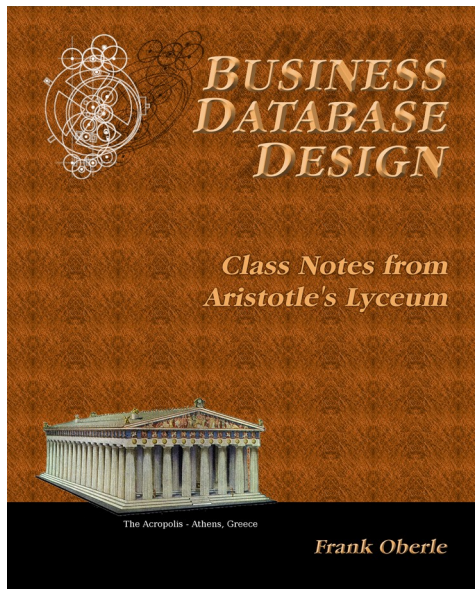
"*Business Database Triage*" is available through major book retailers in most countries, or from the following on-line vendors, each of which has a full description of the book on their site:

CreateSpace: https://www.createspace.com/4513537

Amazon:

www.amazon.com/Business-Database-Triage-Frank-Oberle/dp/0615916937

More information and sample pages at: www.AntikytheraPubs.com

A follow-up book, "*Business Database Design – Class Notes from Aristotle's Lyceum*" is due to be available in the latter part of 2014.

"*Business Database Design*" leads the reader through the logical design and analysis techniques of data organization in more detail than the earlier work – which concentrated more on understanding and identifying problems caused by illogical database design rather than their solutions.

These logical approaches to data organization, espoused by Aristotle and an "A-List" of his successors, have formed the basis for scientific discovery over more than 2,400 years, and directly led to the technology we deal with today, notably including both relational and object theory.

"*Business Database Triage*" explained the reasons why these principles were virtually impossible to apply during the early years of our transition to the use of computers in business, but since the technology is now sufficiently mature that such compromises can no longer be justified, the time has come to relearn logical data organization techniques and apply them to our businesses.