DISCUSSION 6

G. SAMPSON, "A CHINESE PHONOLOGICAL ENIGMA": FOUR COMMENTS

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1. OC SYLLABLE STRUCTURE

One point made by Professor Sampson, which cannot be emphasized too much given the rampant back-projection of Standard Mandarin syllable structure onto Old Chinese realities in the literature, is that "homophony in the Old Chinese of three thousand years ago may not have been strikingly greater than in modern European languages." (p.2.) This could be shown in a sober statistical manner, of course, by looking at textual occurrences of distinct syllables in a good OC reconstruction. Over the years, however, I have come to prefer to demonstrate that point in classes and lectures in a more intuitive way (Behr 2009), by using Y.R. Chao's (1892–1982) famous "Story of Mr. Shī eating a lion" (施氏食獅史 *Shī shì shí shī shǐ*).[1] The story, first written in the 1930ies and later circulated in several versions, whose mildly funny contents need not to be detailed here[2], is formulated in a pseudo-classical *wényán* 文言. In its most commonly cited version it contains a total of 94 characters, 31 of them different, which map onto four tonally distinct, but segmentally fully identical syllables pronounced <*shi*> in Modern Mandarin. However, even with such an artificially constructed piece of prose, *intended to display a maximum of homophony* in Modern Mandarin pronunciation while using the grammar of Classical Chinese, the text would have been fully intelligible in Old Chinese. If we transpose the

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small narrative into a current state-of-the-art reconstruction, e.g. Baxter and Sagart (2014), we obtain a text which is built from 22 different lexical roots with various affixes and, crucially, has *no homophones at all* outside identical lexemes (cf. Appendix I).

In nuce, this point was made by Karlgren more than half a century ago (Karlgren 1951, cf. for the background Malmqvist 2011: 220), but it continues to be ignored, even in the linguistic literature on Classical Chinese. Ultimately, the reasons for this ignorance stem from the central role of monosyllabicity – a term used since González de Mendoza's (1545–1618) *Historia de las cosas más notables, ritos y costumbres del gran reyno de la China* of 1585 – in "alterity" constructions of Chinese as a defective, aberrant, alternatively "natural" or "highly artificial" isolating language vis-à-vis inflecting and agglutinating languages in Europe (cf. Ineichen 1987 for the history of the term).

Apart from distinctions preserved in Middle Chinese rhyme dictionaries and tables, the reconstructed phonology of OC is based to a considerable degree on distinctions retrievable from the rhyming behavior of characters in the *Shījīng* 詩經, the current text of which can be shown to contain Zhōu *and* Hàn phonological elements (Baxter 1991), as well as on consistency patterns of phonophric elements in the writing system which mostly somewhat preceede that stage. Its prosody is on the whole charactersistic of tetrasyllabic metrical types and reduplication practices first seen in bronze inscriptions datable to the Chūnqiū period (Behr 2004, forthc.). It is therefore safe to assume that down to the lifetime of Confucius, there was no pressure whatsoever on the writing system to differentiate between homophones, since they simply did not occur frequently in the spoken language. Indeed, it can be argued with Sagart (2006) and in view of many Warring States mss. which show great variability of semantic classifiers (*bùshǒu* 部首, lit. 'class heads')[3] in phonologically fairly stable orthographies, that the writing system of the Eastern Zhōu period functioned like a large, if somewhat defective syllabary, where a given syllable of the spoken language typically had one (and only one) phonophoric exponent. Even after the largescale loss of derivational morphology and of consonant clusters with the political transition to the Empire and the ensuing dialect mixture and creolization with Tibeto-Burman and other genealogically unrelated language families

in what is now Southern China through intensive and prolonged contact during the period of Hàn expansion and the Early Medieval population dispersals (DeLancey 2011, 2013), the gulf between the writing system and the phonologies represented by it will typically have been non-insurmountable. Taking tonality into account, Middle Chinese still had more than 3000 distinct syllables (Duanmu 1999), i.e. about as much as the 2.756 distinct CVC syllables *regularly* used in Modern English (Barker 2008). In short, the necessity of distinguishing lost distinctions of the spoken language in writing must have been low well down to the medieval period and it is therefore inherently unlikely that disyllabification is *exclusively* driven by functional considerations of homophony avoidance.

2. TONOGENESIS AND HOMOPHONICITY

The process of disyllabification is to a large degree concomitant to the rise of tonal distinctions in Old and Early Medieval Chinese, only completed shortly before the Suí reunification in the peripheral dialects (Pulleyblank 1973). The compensatory function of replacing lost final and laryngeal distinctions in the segmental inventory by phonemic tones is curiously absent from Professor Sampson's consideration of solutions for the apparent “enigma”. This is somewhat surprising in view of the fact that Shannon entropy inspired theories of “functional (FL) load as information loss” (Hockett 1966, Wang 1967) clearly show that the FL of tonal distinctions is much higher than that of stress in non-tonal languages and about as high as the FL of vowels in a tone-language like Mandarin (Surendran & Niyogi 2003: 16). In other words, capacities for lexical distinction in perception and communication arising from such FL patterns, rely *heavily* on tonal distinctions.

It has recently been shown on the basis of a quantitative analysis of the development of Written Tibetan – a language phonotactically very close to pre-tonal reconstructed OC – into its various modern tonal and non-tonal dialect descendants, that there is a clearly identifiably threshold when the rate of segmental homophony invariably gives rise to disambiguating tonal contrasts. Although the employed method is somewhat crude, calculating the degree of homophonicity as the number of single syllables divided by the number of syllables with distinct initials

and finals – 1, it clearly shows a tendency, whereby a homonym rate between 2.5 and 3.0 correlates with the incidence of phonemic tone distinctions in a successor dialect (Kǒng Jiāngpíng 2012). Any solution of the "enigma" will therefore have to carefully take tonal distinctions across the lexicon into account.

3. THE DIACHRONY OF DISYLLABICITY

Footnote 2 dismisses "disyllabic loans, e.g. 駱駝 *luòtuó* 'camel', 珊瑚 *shānhú* 'coral'" as "marginal". Again, I would caution here against two assumptions which could seem to be implied, namely (a) that *all* such cases of internally unanalyzable compounds are loanwords, and (b) that the number of disyllabic words in Old Chinese is truly neglectable, as it is, no doubt, in Modern Chinese, where some 0.3% of the ca. 375k polysyllables in the *Hànyǔ dà cídiǎn* 漢語大詞典 belong to this type (Li Jian 2013: 7). Internally unanalyzable compounds already occur in the *jiāgǔwén* 甲骨文, e.g. in the name of the Shāng dignitaries 𠂤正化, often interpreted as Chātuìhuà 𠂤退化 (OC *ʔ(mə-)tsʰrop=ɳˤəp-s=qʷʰˤraj-s) or Xiàogèhuà 关各化 (OC *s-law-s=kˤak=qʷʰˤraj-s (Djamouri 2006:20) and 𠂤(ʔ師)般 Duī(ʔShī)bān (OC *C.tˤuj(=ʔsrij=)bˤa[n]) (Yán Bǎogāng 2009:4). Western Zhōu bronze inscriptions have unanalyzable onomatopoeia like *míngyōng* 鳴雝 (OC *m.reŋ=q(r)oŋ) or *xìxǔ* 鼷許 (OC *qʰrak=qh(r)aʔ) (Táng Yùmíng 1997/2002:128, Yáng Huáiyuán 2008:90), which are inherently unlikely to be loanwords.

More importantly, it has become increasingly clear during recent years that the process of disyllabification of the vocabulary must have started already in the oracle bone period. Although much depends on the notoriously difficult definitions of "wordhood" in this area[4], some scholars estimate the percentage of compounds as high as one quarter of the vocabulary. According to a statistic by Zhōu Jiàn (2006), the rate of monosyllabic words in Zhào Chéng's (1988) widely used dictionary of oracle bone inscriptions (OBI) was "only" 77. 5% and a recent study by Yán Bǎogāng (2009) puts the amount of disyllabic vocabulary at around 20%. First alliterative compounds such as 冒母 "overcast, cloudy", usually interpreted as →冒晦 *màohuì* (OC *mˤuk-s+mˤəɡ-s) or → 霧霖 *mòmù* (OC *mˤrak+mˤok) are attested in OBI already (*Heji* 10405*v.)*, as is

orthographic instability of identical underlying compound words (Wáng Xiùlì 2012), indicative of incipient prosodic stability for at least some disyllabic items in the lexicon.

A recent metastudy of disyllabicity in 27 early and medieval corpora of excavated texts and in the edited literature (Zhèng Zhènfēng & Lǐ Dōnggē 2010) clearly shows the following trends, directly relevant to the discussion of homophony avoidance as a compensatory mechanism:

(a) disyllabification was incipient long before the phonological changes which eliminated most OC initial consonant clusters and the process of tonogenesis. In pre-Qín paleographic materials, rates of disyllables start out with ca. 20% in OBI, reach a first peak in Chūnqiū 春秋 bronze inscriptions at 27.8%, and a second one in late Warring States and Qín bamboo strip inscriptions (Bāoshān 包山: 43.8%, Shuìhǔdì 睡虎地: 43.5%). The development is *not* strictly linear but apparently strongly dependent on the sociolinguistic layer and textual genre. The great "explosion" of disyllabicity, if seen from the perspective of excavated materials, happens in the Eastern Hàn period, when all corpora start to exceed rates of 50% of disyllabic compounds, reaching as high as 78.2% for a corpus of stone and clay inscriptions from non-literary backgrounds. Since cycles of monosyllabicization via segmental "depletion" and subsequent recreation of polysyllables are an East and Southeast Asian areal phenomenon (for a recent comprehensive overview see Michaud 2012; for the varying degrees of homophonicity in Chinese dialects see Ke, Wang and Coupé 2002), it may well be that the rise of disyllables was also consolidated by areal pressures.

(b) disyllabification rates are roughly comparable between excavated texts and the edited literature, and, if anything, higher in the paleographic materials which tend to reflect the underlying colloquial better due to a lack of editorial "streamlining". Texts like the secular 3rd century A.D. *Records of the Three Kingdoms* (*Sānguó zhì* 三國志) by Chen Shòu 陳壽 (233–297) or the religious *Mahāsāṃghika-vinaya* (*Móhēsēngzhīlǜ* 摩訶僧祇律; Taishō 22, #1425) translated by Buddhabhadra and Fǎxiǎn 法顯 (ca. 337–422) already contain more than 80% compounds.

(c) The idea that the rise of disyllabic words in documents is an artifact contingent upon the availability of paper as a cheap writing support, available roughly since the Eastern Hàn period, has been effectively disproven. The rate of compounding is largely independent of the type of the writing support. Theories, according to which disyllabicity arose early on but was only *reflected* in texts much later due material constraints are therefore unconvincing.

Indeed, it would thus seem that a considerable part of the "shift from monosyllabic to disyllabic words took place *before* the contrast-eliminating sound changes" (p.5) and homophony avoidance can therefore not have been main or even exclusive factor behind it. To get a realistic picture of the development, it is also important to discuss the *type* of disyllabic words created by the shift and its diachrony. Thus, Li Jian (2013) has recently argued that non-analyzable, i.e. monomorphemic split cluster words (roughly, the traditional *liámiánzì* 連綿字) arose *before* polymorphemic, yet phonologically correlated compounds (the traditional *shuāngshēng* 雙聲, *diéyùn* 疊韻 words and some other types of partial or "fission" reduplications, cf. Sūn Jǐngtāo 2008), before dying out again rather abruptly in the Later Hàn and Early Medieval periods. Thus, the attempt to countervail the loss of initial consonant clusters by Boodbergian "dimidiation" ultimately resulted in a strictly disyllabic prosodic template, which in turn facilitated the creation and maintenance of polymorphemic non-correlated compounds via a loop with production (Wedel 2007). Li's point is somewhat akin to Féng Shènglì's work on the rise of the disyllabic foot requirement (Feng 1997) but it looks for an explanation from the beginning, rather than from the end of the OC syllable. While his theory needs a better paleographic calibration of the corpus used to substantiate it, it does explain the lack of polysyllabic structure longer than two syllables, which would have been just as useful in thwarting homophony, and it explains nicely why some truncation processes from tetrasyllabic phrases to disyllabic compounds occur in Modern Chinese, despite the fact that they create more homophony (Li Jian 2013: 112).

On balance, then, any account which starts wondering about the seemingly counterintuitive rise of segmental homophony without looking

closer at the early rise and complicated diachrony of compounding, is bound to stay inconclusive.

4. TAUTOLOGICAL COMPOUNDS

It may well be that "the habit of saying the same thing twice" (p. 5) is neither conditioned by bizarre semantic predilections of the Chinese nor merely by considerations of homophony avoidance, but by the disyllabic template inherited from an already obsolescing morphonological process which is synchronically "blind" to semantic considerations. The same disyllabic template is widespread in other Tibeto-Burman, Tai-Kadaiic and some Austro-Asiatic languages of the area. That such odd word formation patterns may spread areally across genealogical boundaries, e.g. from Sino-Tibetan into Indo-European, has been argued for formations of the type Tocharian A *tuṅk-kāpñune* 'love'+'belovedness', *tuṅk-ylārone* 'love'+'friendliness', *klop śurām* 'pain'+'sorrow', which Sapir (1936 /1949: 275-7) thought to have been formed in imitation of Literary Tibetan models.

Moreover, it is currently by no means clear how rare the phenomenon really is in the languages of the world, since synonym or "tautological" compounding has hardly been treated in typological studies of word-formation (cf. for some preliminary work Wälchli 2005:143 seq.). The apparent violation of informational economy considerations implied by such compounds also exists in European languages, where some cognitive explanations have been offered for it (see, e.g., Benczes 2014 on "emphasis", "clarification" and "upgrading concepts"), but it is obviously much more rare than in East and mainland Southeast Asia. As can be seen in such English textbook examples as *subject matter* and *courtyard,* one diachronic reason for such compounds may be language contact, i.e. the merger of French and Germanic vocabulary in the medieval English lexicon in these two cases. Similar explanations may be offered for a number of Old Chinese cases, where compounds such as *tǔdì* 土地 consist of two largely synonymous syllables, where the first has Austronesian, the second Tibeto-Burman etymological associations. However, the majority of cases of the type *péngyǒu* 朋友 (cited by Professor Sampson on p. 5) "male companions and friends", *rénmín* 人民 "members of the *rén* and *mín* lineages" → "people", *bīnkè* 賓客 "guests", *guānguǎ* 鰥寡 "widower and

widow" → "people in need of support", all occurring in bronze inscriptions already, do not display a hybrid lexical derivation.

Not only the disyllabic template but also the type of tautological word formation is widespread in Tai-Kadaiic, Hmong-Mienic and Austroasiatic areal languages, which share a range of other seemingly odd morphological "habits", such as "expressives", "decorative morphology", "four syllable patterns" (*sìzìgé* 四字格), "psycho-collocations" and the like, which more often than not violate functional principles of information economy.[5] In early Chinese literature, such profligate phenomena form a "syndrom" with stylistic preferences, such as the prevalence of *piántǐwén* 駢體文 parallelism in artistic prose (Hightower 1959, Gentz 2007) and "interlocking parallel style" in philosophical argumentation (Spirin 1976, Wagner 1980).

Professor Sampson's paper sets out with a somewhat nonchalant equation of the distinction between *zì* 字 and *cí* 詞 (p.1). But it is precisely this relationship which needs to be detailed against the diachrony of disyllabicity, tonogenesis, word length, prosody and frequency during various stages of premodern Chinese, before we can be sure whether we are dealing with enigma or just with messy data.

APPENDIX I

ZHÀO YUÁNRÈN 趙元任 (1892–1982): *The story of the stone grotto poet eating lions*

	TEXT	MSM PRONUNCIATION
0.	施氏食獅史	*Shī shì shí shī shǐ*
1.	石室詩士施氏嗜獅。	*shí shì shī shì Shī-shì shì shī.*
2.	誓食十狮，氏時時適市視獅。	*shì shí shí shī,shì shíshí shì shì shì shī.*
3.	十時，適十獅適市。	*Shí shí, shì shí shī shì shì.*
4.	是時，適施氏適市。	*Shì shí, shì Shī-shì shì shì.*
5.	施氏視十獅，恃矢勢，使是十獅逝世。	*Shī-shì shì shí shī, shì shǐ shì, shǐ shì shí shī shì shì.*
6.	氏拾是十獅屍，適石室。	*Shì shí shì shí shī shī, shì shí shì.*
7.	石室濕，氏使侍拭石室。	*Shí shì shī, shì shī shì shì shí shì.*
8.	石室拭，氏始試食是十獅屍。	*Shí shì shì, shì shǐ shì shí shì shí shī shī.*
9.	食時, 始識是十獅屍，	*Shí shí, shǐ shì shì shí shī shī, shí shí shí shī shī!*
10.	實十石獅屍！試釋是事…	*shì shì shì shì …*

APPENDIX I *(continued)*

	OC RECONSTRUCTION
0.	l̥aj k.deʔ mə-lək srij s-rəʔ
1.	dak s-tit s-tə m-s-rəʔ l̥aj k.deʔ gij-s srij.
2.	m-tat-s mə-lək t.gəp srij, k.deʔ N-tə N-tə s-tek C.dəʔ N-kij-s srij.
3.	t.gəp N-tə, s-tek t.gəp srij s-tek C.dəʔ.
4.	deʔ N-tə, s-tek l̥aj k.de-q s-tek C.dəʔ.
5.	l̥aj k.de-q N-kij-s t.gəp srij, dəʔ l̥ijʔ n̊et-s, s-rəʔ-s deʔ t.gəp srij N-tat-s l̥ap-s.
6.	k.deʔ dəp deʔ t.gəp srij l̥əj, s-tek dak s.tit.
7.	dak s-tit qʰip, k.deʔ s-rəʔ-s N-təʔ-s l̥ək dak s-tit.
8.	dak s-tit l̥ək, k.deʔ l̥əʔ l̥ək-s mə-lək t.gəp srij l̥əj.
9.	mə-lək N-tə, l̥əʔ s-tək deʔ t.gəp srij l̥əj, mə-lit t.gəp dak srij l̥əj!
10.	l̥ək-s l̥ak deʔ m-s-rəʔ-s ...

NOTES

1. Chao's motivation for compiling this story in the 1930ies debates about the abandonment of Chinese characters and the future role of romanizations in mass education has recently discussed by Zhāng Jùlíng (2015).

2. See for a flashy illustration of the story e.g. https://www.youtube.com/watch?v=509ad4eCL40#t=0h0m0s.

3. Customarily, but misleadingly designated as "radicals" in English. Nothing is root-like about them, they are mostly secondarily added elements, serving diacriticl functions. The reason they are called "radical" is just a historical accident which resulted from the careless transfer of the traditional Latin terminology used for the description of the tri-radical lexical roots in Biblical Hebrew, which served as the ordering elements of dictionaries, to the items which had similar ordering function in Chinese lexicons by the 16th and 17th century European missionaries in China (Friedrich 2003). The terminology was subsequently hijacked by Étienne Fourmont (1683–1745) in France and others, who initiated an evolutionary-ontological turn in the study of Chinese writing, whereby the "radicals" were seen as a universal toolkit directly representing the *lingua Adamica* (cf. Kim 2009).

4. For some of the problems involved resulting in wildly different counts of OC compounds cf. Zhū Gāngjūn [Ju Gang-gun] 2006.
5. See for an exciting overview the contributions to Williams ed. (2014), and vol. 2 of Duval (2014), "Subject-predicate collocations in East Asia: Focusing on Standard Korean".

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