

parfois différents de la langue parlée ou même étrangers à celle-ci. Il y a des systèmes de versification qui s'empruntent d'une langue à l'autre (la versification grecque n'est pas entièrement indo-européenne; la versification latine classique est en majeure partie d'origine grecque, et à son tour la versification latine du moyen-âge a servi de modèle à d'autres, comme celles des pays celtiques, etc.).

Un cas fréquent est celui d'une langue poétique qui retarde sur la langue parlée; c'est-à-dire qu'un type de versification une fois créé continue à être en usage après que les principes sur lesquels il repose ont cessé d'être ceux de la langue parlée. La poésie perpétue alors une phonologie périmée et donne une idée fautive de la phonologie de la langue parlée contemporaine dont elle dissimule ou contredit l'évolution. La plupart des langues fournissent des exemples de ce fait. Dans la langue épique grecque, le digamma, quoique disparu de la prononciation, continue à manifester sa présence, même invisible (il y a des faits analogues dans la versification scandinave). En français, dans la versification traditionnelle, il faut à l'intérieur du vers tenir obligatoirement compte de l'*e* muet. Les règles que suit la prononciation pour l'usage de l'*e* muet ne sont pas valables en vers; les poètes doivent les méconnaître pour y substituer des règles traditionnelles abolies dans la pratique.

Avant de tirer parti de la poésie pour l'étude phonologique d'une langue, il importe donc de fixer la part de convention et d'artifice que recèle l'usage des poètes.

25. Prof. YUEN REN CHAO (Nanking): *Types of plosives in Chinese.*

Plosives may be studied in regard to their place of articulation or in regard to their manner of articulation. The plosives in most Chinese dialects have the *p*-, *t*-, *k*- places of articulation. Retroflex *t* occurs chiefly as a diaphonic variety of the corresponding affricate, and palatal *k* occurs chiefly as a member of the *k*-phoneme before front vowels. In the present paper, I shall limit myself to a discussion of the types of *manner* of articulation of plosives in Chinese dialects. For the sake of simplicity, I shall take bilabial plosives *p*, *b*, etc. as representatives of the rest, and only note the special cases where bilabials behave differently from dentals or velars.

It is well known among phoneticians that Mandarin has two kinds of plosives: one voiceless unaspirated: *ɸ*, and the other voiceless aspirated: *ph*. An example of each is contained in the word *Peiping*, which in Chinese is *ɸeiphɿŋ*. It is also well known among sinologists that voiced plosives occur in the south-eastern dialects, as in Amoy *be*=Mandarin *ma*, *horse*. Of these three main types *ɸ*, *ph*, and *b* it is possible by further analysis to distinguish at least ten varieties, so far as they have been observed in existing dialects. They are:

No. 1. <i>p</i>	No. 3. <i>ph</i>	No. 7. <i>ɸfi</i>
No. 2. <i>ɸ</i>	No. 4. <i>ɸh</i>	No. 8. <i>b</i>
	No. 5. <i>px</i>	No. 9. <i>'b</i>
	No. 6. <i>ɸfi</i>	No. 10. <i>?b</i>

An unaspirated voiceless plosive may be fortis or lenis. No. 1, *p*, is fortis, as in Shanghai *papa*, *papa*. No. 2, *ɸ*, is lenis, as in the first

syllable in Mandarin *ɸaba*, *papa*. These two cases are very clear. A speaker of the Shanghai dialect or of any of the other Wu-dialects can learn to pronounce the unaspirated *p*, *t*, *k* in French very readily by substituting his own *p*, *t*, *k*. If he wishes to say *capitaine*, he needs only to recall in his own speech the phrase *kapɿ kə tɛŋ*, *a stool near by*. But it would be of little use for a speaker of Mandarin to take as a model the phrase *ɸɸɸidə ɸaŋ ɸsɿ*. For that would make him say *ɸaɸidɛɿŋ*, which would certainly be corrected by non-phonetic English and American teachers of French, who insist that the French pronunciation for the word should be *khaphithɛɿŋ*. This results in endless quarrels between teacher and student, as each thinks that the other is wrong, and they are both right—that is, in thinking that the other is wrong.

The behaviour of these two sounds in combinations is also different. No. 2 readily becomes voiced in (unstressed) intervocalic positions, while No. 1 is quite stable. For example, *ɸaba* is a repetition of the same character 爸, but the consonant in the second syllable is voiced. In Shanghai *papa*?, the two syllables are equally stressed, but even in *'sɛpa'ne*, *three hundred (and) twenty*, the *p* in the unstressed syllable is still voiceless.

Nos. 3, 4, 5 and 6 are aspirated voiceless plosives. No. 3, *ph*, is fortis aspirated, as in Mandarin *pha*, *to be afraid*. No. 4, *ɸh*, is lenis aspirated, as in Nanchang (the provincial capital of Kiangsi) *ɸha*, *to be afraid*. No. 5 is fortis with fricative aspiration, as in T'aiyuan *pxa*, *to be afraid*. No. 6 is fortis with *voiced aspiration*, as in Shanghai *ɸfi*, *playing-cards*.

No. 3 is very stable. The aspiration is maintained in all positions. Even in the Mandarin of Peiping, which is one of the few dialects which has a clear stress-accent, there are only a small number of special cases where the aspiration is lost through loss of stress, as *'xuθu* > *'xuθu* > *'xuθu*, *not clear*; *'phiphə* > *'phihə* > *'phihə*, a musical instrument or a fruit of that name. But this is by no means automatic. For example, *'uathou*, *outside*, never *'uardou*.

No. 4 differs very little from No. 3 in acoustic quality. But it behaves very differently from No. 3 in combinations. While No. 3 is very stable, as we have just noted, No. 4 not only changes readily into unaspirated voiced *b* (No. 8) in intervocalic positions, but also alternates with the voiced *b* as a variphone. For example, *out-of-the-way*, in speaking of a place, is *ɸienphi* in Peiping. In Nanchang, either the second plosive or both the first and the second plosives become voiced, that is, it is either *ɸhienbi* or *bienbi*.

No. 5, *px*, seems to be a plosive followed by an oral fricative, and in the case of the velar consonant *kx*, it is practically an affricate. I consider this an aspirated plosive, not only because it corresponds to the plain aspirated plosives in other dialects, but also for a phonetic reason. In many dialects of the province of Shansi, for instance in T'aiyuan, this aspiration *x* becomes an *ich*-laut before front vowels, as *ɸci*, *skin* as against *pxa*, *to be afraid*. Now, the *ich*-laut in itself need not be an aspiration. The French word *pied*, for instance, is often transcribed *pɸe*, but the sound of *pied* is as far removed as possible from the word *pɸe*, *a slant stroke*, in the Shansi dialects. The difference is this: the French *p* belongs to

Type No. 1, and is very antagonistic to any aspiration. The following j-sound, though voiceless by assimilation, is therefore not a ç with the glottis wide open, but derives its little expiratory force chiefly from the mouth cavity, which is a very different affair from aspiration. In the Shansi pxa and pçi, on the other hand, the glottis is wide open. The aspiration is therefore the main thing and the velar or palatal friction is only secondary.

This type of plosive also exists in some of the dialects to the east of Yangchou, side by side with the plain aspirate. For example, in Jukao tho?, *to lift on the palm*, as against txo?, *poison*.

No. 6, pfi, is a very interesting type. It is the third in the series p, ph, pfi in most of the Wu-dialects. It usually passes as a b-sound and certainly sounds like one.¹ But when a speaker of the Shanghai dialect speaks of a pfiɿkɿɿɿ, *big boy*, not only does the voiced aspiration seem rather striking, but there is also practically no voiced b in it at all. It was LIU FU who first called my attention to this voiceless nature of the so-called voiced series in the Wu-dialects after he had obtained kymographic proof of the fact.² What makes this give the impression of a b is the fact that it becomes a true b in intervocalic positions. For example, Shanghai pfiɿ?, *different*, but in the combination tɿɿɿɿɿ?, *special*, the voiceless plosive plus voiced aspiration becomes a voiced plosive without aspiration; the initial syllable tɿɿɿ (?), however, remains a plosive of type No. 6. The plosives No. 1, p, which occur in these dialects, as we have seen, do not become voiced in intervocalic positions.

Nos. 7, 8, 9 and 10 are true voiced plosives. No. 7, bfi, has voiced aspiration. It occurs in the same group of dialects and in the same words where there is pfi, of Type No. 6. I am not certain that this ever exists as an independent phoneme.³ So far as I have been able to observe, it exists as a member of a variphone of which No. 6, pfi, is the other member. For example, in Ningpo, bfiɿ alternates with pfiɿ, *playing-card*. As with No. 6, it becomes an unaspirated b in intervocalic positions.

No. 8, b, is the ordinary voiced plosive lenis. Besides being a variation of the other types, as we have already seen, it also exists as an independent phoneme. In Amoy, it is a member of the diaphone appearing as m in most other dialects, as bo, *hat*, Mandarin mao. We have already noted under No. 4, the lenis variety of the aspirated plosive, that the bh of Nanchang alternates with voiced b. Now in a number of other dialects of Kiangsi in the Nanchang region, all aspirated plosives become voiced and unaspirated. Thus, Nanchang bhɿɿ alternates with bai, *to assign, to appoint*; in Tuchang and Huk'ou, it is always bai. Before high vowels, the velar plosive even changes

¹ As for example to B. KARLGRÉN, *Phonologie Chinoise*, p. 260, who recognizes the aspiration. J. EDKINS, however, writes p, t, k in italics for initial positions and b, d, g only for intervocalic positions. See his *Grammar of the Shanghai Dialect*, 2nd ed. 1868, pp. 1-2.

² I am unable for the moment to find the reference to his publication; it is probably in a paper published in Peking, c. 1925.

³ Since writing the above, I have found a perfect specimen of the voiced lenis plosive with voiced aspiration in T'ungch'eng, in south-eastern Hupeh: bfiɿ, *to be afraid*, Mandarin phiɿ, Nanchang bhɿɿ or ba.

into a continuant. Thus, Nanchang, ġhuai, *quick*, alternates with guai, but in Tuchang, it is war.

No. 9 is a voiced b with a simultaneous stricture of the vocal cords. As a temporary notation I put an apostrophe before the letter b ('b). This sound occurs in a small region to the east and west of Shanghai, but not in Shanghai. Thus in P'utung and Sungchiang, 'bo, *to have eaten enough*, corresponds to Shanghai po, which is Type No. 1. The only other place where I have observed this type of articulation is in Yungk'ang, in the middle of Chekiang province.

No. 10 is like No. 9 except that both the glottal stricture and the labial articulation are stronger, so that if we may regard No. 9 as being lenis, No. 10 is fortis. A distinctive acoustic as well as articulatory feature of this is that as the explosion takes place, there is not enough air passing out of the vibrating but constricted vocal cords to fill the enlarged cavity of the mouth, and the result is a momentary sucking in of the air, which gives a high pitch to the tamber of the sound. This fact has been proved kymographically by my colleague F. K. LI in his recording of the Hainan dialects. The curve actually moves inwards instead of outwards where the "explosion", as we are in the habit of saying, takes place. The only place in China where this sound has been observed is in the north-eastern part of Hainan Island, for example in Wenchang ?ban, *a board*, as compared with No. 9, P'utung 'be, and No. 1, Shanghai pe.

A very significant circumstance about the occurrence of Types 9 and 10 is that in all the dialects in which they are known to exist they are always limited to labials and dentals and never exist in velars. As these correspond phonologically to the unaspirated voiceless p, t, k in other dialects, the series for these dialects is always ?b, ?d, k, the last one is just plain k. The reason is not far to seek. Between the velum and the glottis, there is not much room to do any of the tricks that can be done with the larger cavity for a b or a d. As soon as there is any vibration of the vocal cords, the cavity for a g is filled and a positive pressure is created. There is therefore no space or time to make any impression of suspension as with No. 9 or of inward "explosion" as with No. 10. The velar plosive is difficult to voice without having to do any additional tricks.

There are two types of plosives which so far have not been observed in any of the Chinese dialects. One is the voiceless plosive with simultaneous glottal stop p?, t?, k?, as is found for example in Chipweyan, an American-Indian language. What comes near it is the so-called implosive end-consonants of the Southern Chinese dialects, for example, Cantonese kap, *urgent*. At the end of a group it does not sound in any way different from Type No. 1, p, minus explosion. But when followed by a vowel, there is just enough of a glottal articulation to prevent it from directly exploding into the following vowel. Thus hat(?)i, *a beggar*, never hati. The glottal articulation, however, is not so strong as to justify our identifying it with the American-Indian type, as that would make it hat?i, which is not the Cantonese pronunciation.

The other type of plosive which seems to be missing in China is

the voiceless plosive with an intermediate degree of aspiration, of which the English *p* is a typical example. When an Englishman pronounces the name of the old Chinese capital p'ep'ing, it sounds to the Chinese ear as if he perversely interchanges the consonants by a sort of Spoonerism. We think we hear p'herp'ing pronounced for what ought to be p'erp'ing. It is true that the consonants in *peak*, *take* and *Kate* are more aspirated than in *speak*, *stake* and *skate*, a difference which is readily noticed by all Chinese students of English. But if a Chinese pronounced these sounds in the Chinese fashion and said *ph-eak*, *th-ake*, *kh-ate*, and *sp-eak*, *st-ake*, *sk-ate*, it would certainly sound somewhat un-English. We can therefore consider both these varieties of voiceless plosives in English as having intermediate degrees of aspiration, and these have so far not been observed in any of the Chinese dialects.

I have so far given a description of the types of plosives which are known to exist in Chinese dialects and made occasional references to their geographical distribution and phonological correspondences. A detailed examination of these correspondences will form the subject for a later study.

Once again the ten types of plosives in Chinese:

No. 1. p t k	No. 3. ph th kh	No. 7. bh dh gh
No. 2. ḅ ḍ g̣	No. 4. bḥ dḥ gḥ	No. 8. ḅ ḍ g̣
	No. 5. px tx kx	No. 9. 'b 'd —
	No. 6. p̣h ṭh ḳh	No. 10. ?b ?d —

26. Prof. S. BOYANUS (Leningrad): *The main types of Russian intonation.*¹

I. FOUR MAIN TYPES

There appear to be four main types of intonation used in Russian speech:

1. A falling intonation.
2. A high-pitch interrogative intonation.
3. A rising intonation.
4. A rise-fall intonation.

These four types may be clearly heard in these one-word sentences: 'pravdā (*It's true*), 'gromtjı (*Louder*):

Types			
1. Falling		'pravdā. <i>It's true.</i> (Assertion and exclamation.) 'gromtjı! <i>Louder!</i> (Command.)	
2. High-pitch Interrogative		'pravdā? <i>Is it true?</i> 'gromtjı? <i>Do you want it louder?</i>	
3. Rising		'pravdā? <i>Is it possible it's true?</i> gromtjı? <i>Is it possible you want it louder?</i>	
4. Rise-fall		'gromtjı! <i>Louder, please!</i> (Request.)	

¹ I am indebted to LILIAS E. ARMSTRONG and IDA C. WARD for the help their *Handbook of English Intonation* has given me in studying the intonation of my own language. The notation I use is that used in their book.

II. USE OF THE FOUR TYPES

Type 1. The falling intonation is the typical one for assertions (see above), commands (see above), questions asked with an interrogative word—pronoun or adverb—'gdē 'pravdā? (*Where is the truth?*) and exclamations (see above).

Type 2. The high-pitch interrogative intonation is used in colloquial speech in questions which may have "yes" or "no" as the answer. These questions do not differ in verbal structure from statements, the distinction being made only by intonation. ("Yes" or "no" questions used with the particle *li* sound bookish, except when in the negative. They have intonation type 1.)

This type is the most characteristically Russian of all the types, and the one which a Russian finds the most difficult to shed when he speaks another language. It is a very common tune: its use is not limited to "yes" or "no" questions. It is often heard in non-final groups in colloquial speech and in colloquial passages in reading aloud.

Type 3. The rising intonation is used (a) in those questions which can be answered by "yes" or "no" and which at the same time imply some degree of perplexity, doubt or surprise (see above table). These questions do not differ in verbal structure from statements, the distinction being made only by intonation. (b) In statements and commands with an implication, e.g. 'moʒet bit̄ — ··· (Perhaps); nı 'duməju — ··· (I don't think so); pa'probujtjı! — ··· [Try it! (implying: and you'll see what will happen)]. (c) In non-final intonation groups in reading aloud narrative and descriptive passages, and also in colloquial speech when the speaker reasons, explains, proves.

Type 4. The rise-fall intonation is used in requests (see above table). Requests may also be said with intonation type 1, i.e. with the tune of commands. In this case the voice quality is different, and the idea of request is strengthened by the use of some expression such as pa'zaləstə (*Please*), dəra'goj moj (*My dear*), etc.

III. THE STRESSED SYLLABLES OF THE FOUR TYPES

Let us now study the types in longer sentences, listening specially to the intonation of the non-final stressed syllables of types 1 and 3.

Type 1	on 'lühıt i'grat̄ f 'karti.		He likes to play cards.
" 2	on 'lühıt i'grat̄ f karti?		Does he like to play cards?
" 3	on 'lühıt i'grat̄ f 'karti?		Is it possible he likes playing cards?
" 4	pəgəva'rītjı s nım.		Please speak to him.

In type 1 there is generally a slight rise on each non-final stressed syllable, and in type 3 a slight fall on each non-final stressed syllable. The slight rises in type 1 throw into greater relief the final fall, and the slight falls in type 3 throw into greater relief the final rise. The fall on the final stressed syllable of type 1 is low, as in French. This low fall is specially noticeable in sentences containing more than one stress.