THE PHONEMIC STRUCTURE OF PEKINGESE FINALS AND THEIR R-SUFFIXATION

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0. ABSTRACT

This article is aimed at a special audience, namely, the scholars who are already very familiar with the details of Pekingese phonetics but are nevertheless still keenly interested in its theoretical interpretation. The purpose of this study is to present, through examining some previous studies on Pekingese phonology, a new analytical interpretation of the phonemic structure of the Pekingese syllable finals. In this process, it tries to demonstrate that classical studies on this subject, such as Hartman 1944 and Hockett 1947, are either descriptively inadequate or theoretically unsound, or both. The basic premise of this study is its author's conviction that the truly phonemic study of a language must always be an accurate reflexion of, or a logical explanation for, the feeling of its native speakers, in particular, their habit of rhyming. It concludes that Pekingese has indeed three vowel phonemes, but proposes a new theory to account for their distribution. On this basis, a very simple and logical specification of the morphophonemic process of r-suffixation in Pekingese phonology is presented.

1. INTRODUCTION

The sound system of Modern Pekingese (MP) and its immediate earlier forms had been the subject of numerous and intensive studies by Chinese scholars long before Western linguistic technology was introduced into China. Since Chinese scholars in the past used Chinese graphs instead of phonetic symbols as the means of representation, their works represent, in effect, an effort to specify

the contrasts, and the relationship thereof, in the sound system of their language. They did this by classifying the words (or graphs) in their language into various classes and subclasses as determined by the different ways these words were read, or by using some ingeniously designed charts (or tables) to show the relationships among these words in their reading. In other words, although the Chinese did not know, and therefore, never used the term "phoneme", they were actually doing phonemic study on their own language long before this concept was understood in the West. The introduction of Western linguistics in its pre-phonemic form into China is, I would say, a mixed blessing. On the one hand, it gave the Chinese a set of phonetic signs as a simple and effective tool, but, on the other hand, it so impressed and awed some Chinese scholars that it made them forget the beauty of their own tradition. With the rising of phonemic theory, the study of the Chinese language in the West also entered its phonemic phase. First we saw Hartman's "The Segmental Phonemes" (1944). Though still containing a number of errors and misconceptions, Hartman's article marks, in my opinion, a remarkable beginning in the theoretical interpretation of the MP sound system. It carries a potential, though its author did not seem to be aware of it, to hook up modern phonological theory with traditional Chinese phonological study and, thereby, to make us understand and appreciate the latter better. The hook-up, however, did not take place. Instead, we saw a few years later Hockett's "Peiping Phonology" (1947) which, though winning wide attention after its publication, is actually not even descriptively adequate (see 7. 1). Many more studies on MP have appeared since then, not only in the West, but also in Russia and Japan. In Mainland China, under the influence of Western phonemic theory, the social and functional nature of speech sounds was reaffirmed, and a lively debate about the phonemes in Pekingese was carried on from the late 50's to the early 60's, until it was presumably interrupted by the "Great Cultural Revolution", before a general consensus could be reached (see Bibliography). When generative phonology became the fashion, studies on Pekingese phonology cast in this new mode also appeared, and we hear complaints that for too long the study of Chinese phonology has stayed on the phoneme level.

It might seem rather strange that, after so many people have worked on this subject for so long, I should want to do it again. However, with due respect to all those who have worked on this subject, and acknowledging that, in different degrees, they have all contributed something to the understanding of this subject, I must say that I still have a few ideas to add to this discussion.

1.1. Since it will take too much time and space to comment on all the previous writings on this subject, I shall, in this paper, reluctantly restrict myself to merely expressing my own ideas, except in those cases when I have to criticize somebody to make a point. The differences between my interpretation of the MP sound system and all the other interpretations perhaps come from a conceptual difference between myself and the others. To me, phonemic study represents primarily an effort *to uuderstand, as well as to explain, the feeling of the native speakers.* Other considerations, such as phonetic similarity and economy in transcription, are only secondary by principle. The ultimate test of a successful analysis of a sound system will be whether it can best explain the spontaneous reactions of the native speakers to speech sounds, for example, rhyming. Therefore, we shall *not* accept alternative (or non-unique, see Chao 1934) solutions, because, by applying vigorously the criterion we have set for ourselves, one of the "alternatives" eventually will have to be judged as the right one for being explanatorily better than the others. In order to achieve this goal, the style or format in which an analysis is presented will have no substantial bearing. I believe there is no fundamental difference between a truly accurate analysis expressed in terms of "phonemes" and an equally accurate analysis expressed in terms of "distinctive features". It is true that an analysis in terms of phonemes will have to be supplemented by remarks about the phonetic realization of these phonemes and this can perhaps be better done in generative terms, but it is also true that generative phonology can do this better if it can start with a set of accurately induced phonemes, because in this sense a "phoneme" is nothing but a "cover symbol" for "a bundle of distinctive features".

1.2. Since there have been so many studies on this subject, it might seem that some of the ideas the present paper presents have been proposed by one

or another of the previous studies. However, it should be noted that the present paper is the first one to incorporate these many piecemeal proposals into an intergrated body. More importantly, many of these previous proposals have been made either without sufficient justification or on grounds that are theoretically questionable. They are now reintroduced either with completely different justification or with additional new evidence in their support.

2. SYLLABLE PATTERNS IN CHINESE

Phonological study in China has always been focused on the analysis of "monosyllables". This is, of course, dictated by that fact that Chinese is by and large a monosyllabic language (see Chao 1968: 139). It is true that a few disyllabic or polysyllabic morphemes did exist in the language even in the very ancient time and the number of such morphemes has been steadily on the increase ever since, but even in Modern Chinese their number is still very limited in the total vocabulary. Moreover, the overwhelming tendency among the native speakers of Chinese to identify any single syllable with a meaning reflects their subconscious feeling about their language in this respect. Thus, we can see that the traditional practice is really a very pragmatic and ingenious approach. Practically, all modern scholars have adopted this traditional approach as a general frame in their study of the Chinese language, though some, especially those in the West, often added a somewhat apologetic note to the effect that they did so only for convenience or that there were other ways which might be equally effective. However, we believe that the traditional way is the most effective way predetermined by the nature of the language.[1]

2.1. As we all know, this tradition specifies that a syllable in Chinese consists of three parts, *shēng* 聲 (or 聲母, the syllable initial), *yùn* 韵 (or 韵母, the syllable final), and *tiào* 調 (or 聲調, the tone of the syllable). Of these,

1. It may be noted here that this traditional Chinese approach has been applied with apparent success to some other languages. See, for example, Hu Tan's "The Tonal System of Modern Tibetan (Lhasa Dialect)" and Wang Fushi's "The Comparison of Initials and Finals of Miao Dialects", two papers presented at the 12th International Conference on Sino-Tibetan Languages and Linguistics, October, 1979, Paris.

the final has been further analyzed into three subparts, *yùn-t'óu* 韵頭 (or 介音, the medial), *yūn-fù* 韵腹 (or 主要元音, the nucleus), and *yūn-wěi* 韵尾 (or 收聲, the ending). Furthermore, the practice of rhyming requires (and this has been widely acknowledged) that words can rhyme only when the syllables that represent them share the same vowel and the same ending. For many years, I have been using the following formula as a way to sum up this traditional description. This formula can, of course, be easily justified synchronically in MP, but the fact that it is based on a tradition of more than ten centuries implies that it has the most far-reaching potential for the study of the Chinese language. Indeed, I believe historical studies of the Chinese language and comparative studies of Chinese dialects will be more successful, when they are executed on this basis.

(C) (M) V (E)

The four letters in the formula represent respectively the initial consonant, the medial, the nuclear vowel, and the ending. Of these, only V appears without parentheses. This is our way to state that *a syllable by definition must have a vowel.* Other parts are important for their syllable-differentiating function, but "V", besides differentiating syllables on its own, represents the peak of a syllable, the part that is responsible for a syllable to be a syllable. This definition of "syllable" implies immediately that we reject such notions as "vowel-less syllables" and "syllabic consonants". As mentioned above, the generally accepted definition for rhyming is that syllables can rhyme when and only when they share the same vowel and the same ending, namely, "V(E)" in our formula which I have labeled "rhyme base" (*yùn-chī* 韵基). Quite obviously, adherence to this definition of rhyming is possible only when we adopt the definition for "syllable" mentioned above. This does not mean that we would admit no exception to this definition of rhyming, but it means that exception or exceptions must be very marginal and must be supported by highly convincing non-phonological explanations.

2.2. There has been controversy about the nature of the tone. The following opinions have been expressed: (1) it goes with the whole syllable; (2) it

starts with the first voiced element in the syllable; (3) it covers the whole final; and (4) it goes with the vowel. A direct corrollary of our definition of "syllable" is that the tone goes with the "V". Just as a vowel phoneme can be phonetically realized in different ways as a result of the influence of its neighbouring elements, a toneme can also be extended phonetically beyond a vowel to cover other compatible-elements in the syllable, and this fact should not be allowed to confuse its phonemic status as a suprasegmental element of the vowel. We have to recognize five tones in Pekingese, the four regular tones in stressed syllables and the neutral tone in unstressed syllables. The present study will concentrate on the three segmental units in the final with tone mentioned only when it is relevant to the discussion of these segmental elements.

2.3. In order to keep this paper within a reasonable length, but, more importantly, for the sake of directing undivided attention to the main issues in the finals, we are not going to discuss the initial consonants here. Instead, we shall let our view be represented by the following chart, together with a few clarifying remarks.

Manner / Point	Unasp. Stops	Asp. Stops	Fr.	Nas.	Liq.
Labials	p	ph	f	m	
Dentals	t	th		n	l
Alveolars	c	ch	s		
Retroflexes	cr	crh	sr		r
Velars	k	kh	h		(ɸ)

a) Each occupied box in the chart stands for one phonemic unit of that description, i. e., one "phoneme", whether represented by a single letter or a cluster.

b) When "h" and "r" appear together with another letter, they each represent a "feature", rather than a separate "phoneme". For example, the phonemic unit /ph/ means "the bundle of features represented by the cover symbol /p/ plus aspiration". Similarly, /crh/ means "/c/ plus retroflexion and aspiration."

c) We interpret [tɕ, tɕ', ɕ] as allophones of /k, kh, h/ respectively.

3. MEDIALS

For several centuries, syllables in Chinese have been classified into four types, namely, *k'āi-k'ŏu* (開口), *ch'ĭ-ch'ĭh* (齊齒), *hó-k'ŏu* (合口), and *ts'ò-k'ŏu* (撮口). Due to the technique they employed, Chinese scholars in the past could only imply that this classification was based on the medial of a syllable. Modern studies on Chinese have generally confirmed this, though, in some limited but crucial cases, many scholars have been confused by what they conceived to be the "real phonetic value". Consequently, their conclusions have somewhat clouded the true meaning of this traditional classification by misleading people to believe that this may be a matter of the main vowel, too (e. g., Tung 1968: 21). We would like to reiterate here that the classification is based *purely and solely on the syllable medial* and nothing more.[2] Thus, to us, *k'āi-k'ŏu* means simply zero medial, *ch'ĭ-ch'ĭh* means [i] as medial, *hó-k'ŏu* means [u] as medial, and *ts'ò-k'ŏu* means [ü] as medial.

3. 1. Some scholars say the medials are "more vowel-like", and thus insist that they be represented by normal vowel symbols. Our definition for syllable, however, forces us to say that phonemically they must be semi-vowels, because no matter how vowel-like they may be phonetically, they cannot be more vowel-like than the vowel (V). To mark clearly their subordinate status, we shall use /y/ for *ch'ĭ-ch'ĭh* and /w/ for *hó-k'ŏu*. Since *ts'ò-k'ŏu* shares a common characteristic with each of them, we shall, following Hartman, represent it by the compound /yw/. For descriptive convenience, we shall always write "y" before "w", but unlike Hartman, we do not recognize them as separate phonemes. They are rather "features" representing jointly a single phoneme. As features,

2. Though Wang Li also defines this classification improperly (Wang 1979:284-285), he shows sound understanding of this issue, when he, in an effort to correct some common misidentifications caused by the Pinyin transcription, refers repeatedly to a certain vague "phonological system" ("音韵學", "這個系統"). The fact is every Chinese syllable bears a special property which qualifies it as a member of one of the four classes, regardless of how it might have been transcribed. A strict phonological interpretation must reveal this fact overtly and properly.

"y" stands for palatalization, and "w" stands for labialization. In this way, the four-way classification can be defined in a clearcut manner as follows:

開口 K'ai-k'ŏu	-ϕ-	[−pal, −lab]
齊齒 Ch'í-ch'ĭh	-y-	[+pal, −lab]
合口 Hó-k'ŏu	-w-	[−pal, +lab]
撮口 Ts'ou-k'ŏu	-yw-	[+pal, +lab]

3. 2. This definition also explains two sets of contrastive terms in traditional Chinese phonology, namely, *k'āi* vs. *hó* (both in a broader sense) and *húng* (洪) vs. *hsì* (細). We can see now that the former represents a contrast between the absence and the presence of labialization, while the latter represents a contrast between the absence and the presence of palatalization. A further but unnecessary complication about the medials comes from the fact that quite a few scholars interpret the "r" in the retroflex initials as a medial (e. g. Hartman 1944 and Hockett 1947). Their purpose for doing so is to justify their grouping of [tʂ, tʂ', ʂ] [ts, ts', s] together as one series of initial phonemes. Since we interpret [tʂ, tʂ', ʂ] differently, treating "r" as a medial becomes purposeless, but more importantly, it is undesirable to establish a medial which can occur only after one single series of initial phonemes.

4. ENDINGS

Syllable endings, when compared with syllable medials, seem to be more closely tied to the vowels that occur before them, so much so that the National Phonetic Letters (注音符號) always represents the two elements, "V(E)" in our formula, with a single symbol. Moreover, it has been reported that in a number of Mandarin dialects, diphthongs representing "VE" such as [ai] and [au] (or [ao]) have become single vowels, with [i] or [u] merging into the preceding vowel, and nasals as ending have been replaced by nasalization superimposed

on the vowel (Dragunov and Dragunova, 1955: 516). It may be asked, then, why we have to recognize the existence of "E". The answer is that in MP it is still recognizable and its recognition greatly clarifies the vowel system. Moreover, classification of syllables into different types according to syllable ending is also a time-honored practice in the Chinese tradition, with a number of technical terms to be defined in this way.

4.1. We recognize altogether five endings: [-i, -u, -n, -ŋ, -r]. Of these, "r" is a peculiar one. Except in the syllable representing such words as 兒耳二, its occurrence as a syllable ending is the result of a morphophonemic process. So we shall discuss this peculiar ending later (see Section 6). It has been suggested that [i] and [u] as endings are even more vowel-like, but, again, our definition of "syllable" allows them only a subordinate role. To mark this fact, we shall also represent them with /y/ and /w/ respectively. The traditional classification of syllables on this basis can thus be defined as follows:[3]

Chíh-yīn	(直音)	-Vϕ
Shōu-yi	(收噫)	-Vy
Shōu-wū	(收嗚)	-Vw
Tǐ-ò	(抵顎)	-Vn
Ch'uāng-pí	(穿鼻)	-Vŋ

4.2. Both medial and ending can exert strong influence on the phonetic realization of the vowel phoneme that occurs between them, but it has been observed that primary assimilating force on the vowel always comes from the ending. That is why the vowel and its ending in a syllable are almost inseparable.

5. THE VOWEL

One of the main concerns in traditional Chinese phonology is rhyming

3. Terms for syllables classified according to the ending are adopted mainly from Shen Ch'eng-lin's (沈乘麐) *Yùn-hsuéh Lí-chū* (韵學驪珠). Other sources may vary somewhat. Shen uses simply Pí-yīn (鼻音) for Ch'uāng-pí, and includes other terms like Măn-k'ŏu (滿口), Ts'ò-k'ŏu (撮口) (in addition to Chíh-yīn) and Pì-k'ŏu (閉口) (for rhymes with /m/ as ending).

which, as mentioned before, has been defined as a matter of the nuclear vowel and the ending of a syllable. This means that all words represented by syllables with identical "V(E)" can and must rhyme as a group. If we take this definition of rhyming seriously, as I think we should, we will be forced to say that any analysis of the MP sound system which cannot explain its general practice of rhyming (hence, the native speakers' feeling in this regard) in terms of "V(E)" is unsatisfactory. By the same token, the success of the reconstruction of any historical period should be measured with the same yardstick. As we said before, this does not mean that no exception from the definition will be permitted. But exception, if any, must be very few, and each of them must be given an explanation. However, in practically all previous studies on MP, rhyming as a factor has hardly been considered, and in most historical reconstructions which are based on old rhyme dictionaries, its logical definition has often been ignored.

5.1. By following this definition of rhyming, I have come to the conclusion that we must recognize at least three and no more than three vowel phonemes in MP. That MP can be phonemicized as having only three vowels is hardly anything new by now. It was first proposed by Hartman in 1944. To establish a low vowel phoneme /a/ and a mid vowel phoneme /ə/ (Hartman's /e/) is relatively easy, but to establish a single high vowel phoneme /ɨ/ (Hartman's /i/) almost contradicts "common sense". It can be done only by recognizing that vowels like [i, u, ü] in this language represent the phonemic compounds /yɨ, wɨ, ywɨ/ respectively. Even today, there are many people who can see no justification for further analyzing these "single vowels" into phonemic compounds (e.g. Cheng 1973: 12-13). We say this is absolutely necessary for two reasons: (1) to understand that the classification of syllables into *K'aì-k'ŏu*, *Chī-ch'ih*, *hó-k'ou*, *ts'ò-k'ŏu* and the two binary contrasts *k'āi* vs. *hó* and *húng* vs. *hsì* are practices based *exclusively* on medial (see Section 3); (2) to explain the native speakers' feeling in rhyming words like 衣 ([i]=/yɨ/), 尸 ([ʂɻ]=/srɨ/), 居 ([tɕü]=/kywɨ/) together. (In the "Thirteen Tracks" 十三轍 tradition, they all belong to the *yī-ch'ī* 一七 Rhyme. Cf. Lo Ch'ang-p'ei 1950: 35. In our interpretation, *yī-ch'ī* has /-ɨɸ/ as its rhyme base.) However, Hartman did not seem to be

aware of these justifications. For he did not memtion the first, and he clearly violated the principle of rhyming in his conclusion (see 5. 2). This deviation and a few others from the Chinese tradition somewhat spoiled his otherwise very remarkable paper. It would seem that Hartman's paper could be greatly improved by making it conform more to the Chinese tradition. Instead, it was followed by Hockett's "Peiping Phonology" (1947) which, in trying to further simplify the already very simple MP vowel system, moved even farther away from the Chinese tradition. In Russia, Dragunov and Dragunova published their research on MP in 1955. By their own confession, they delibrately followed the Chinese way, instead of using the European model as studies on MP before theirs did. We do not know, whether they were aware of (and hence, influenced by) Hartman's and Hockett's works or not, but their conclusion is very similar to the American's, perhaps more so to Hockett's. Instead of saying there are three vowel phonemes in MP, they say there are three "types" of syllable finals: the zero type, the "ə" type, and the "a" type. In 1958, Tōdō Akiyasu, the Japanese expert on the Chinese language, also published his research on the MP sound system. Needless to say, he was more familiar with the Chinese tradition than the Russians. His conclusion is also that there are three vowel phonemes in MP, /ɪ, ə, a/.

5. 2. One peculiar thing in the MP sound system is that only syllables without ending show a three-way contrast in vowel height (e. g., 宜 /yɨɸ/, 爺 /yəɸ/, 牙 /yaɸ/, while syllables with ending show a two-way contrast in vowel height (e. g., 今 [tɕin] vs. 妍 [tɕiɛn]). Since words like 元 /ywan/, 江 /kyaŋ/, 怪 /kway/, 桃 /thaw/, etc. have obviously the low vowel /a/, their counterparts 雲 [yün], 京 [tɕiŋ], 貴 [kuâi], 頭 [t'ou] can be interpreted as having either the high vowel /ɨ/ or the mid vowel /ə/. Either choice, if consistent, would be not only descriptively adequate, but also good enough to explain the native speakers' habit in rhyming. Hartman, however, made a mixed choice, for the sake of "a clear-cut distinction of vowel quality" (Hartman 1944: 41). He argued that since words like 京 [tɕiŋ], 民 [min] etc. have clearly a high vowel, the high vowel phoneme /ɨ/ should be assigned to them, but words like 更 [kəŋ], 門 [mən],

九 [tɕiə̯u] etc. must have the mid vowel phoneme /ə/, because they are phonetically lower. Both Tōdō and Dragunov assigned the mid vowel to all these words. They did not explain why, but presumably what were clearly high to Hartman's ears were mid to theirs. As far as I know, Stimson seems to be the first and only one who once chose to use the high vowel phoneme /ɨ/ consistently though he did not specify his reason for doing so (Stimson 1966: 15-16). I once criticized him for this choice on the structural ground (Hsueh 1973: 80, 1975: 135). To me, the generalization that "In MP only [V, -high] can occur before syllable ending" was simple, logical, and, therefore, better. My recent research has, however, convinced me that two other considerations should be given priority before the consideration for structure. These considerations are:

a) The choice of the high vowel /ɨ/ will better explain (and highly faciliatate our description of) the morphophonemic process for r-suffixation. This will become self-evident when we deal with that process in Section 6. 3.

b) This choice can better reflect the real nature of the sound system in terms of historical developments. The vowel system of the Chinese language from the T'ang dynasty to the beginning of the Ch'ing dynasty had four vowels distributed in the following manner (Hsueh 1975 and 1976):

	front	central	back
high		ɨ	
low	e	a	ɔ

Due to the gradual but steady erosion of the contrast among the low vowels, there eventually appeared the three-vowel system in MP. The situation before the last erosion was clearly registered in the famous "Thirteen Tracks". This product of the early Ch'ing dynasty showed a two-way contrast in vowel height in all syllables with ending, but included the three rhymes *mièh-hsiɛ́h* (乜斜), *fāh-huā* (發花), and *sō-p'ō* (梭坡) which can only be reconstructed as /-eϕ/, /-aϕ/ and /-ɔϕ/ respectively. The last step of the erosion took place sometime before the middle of the Ch'ing dynasty, when *mièh-hsiɛ́h* and *sō-p'ō* coalesced in sharing the mid vowel /ə/ ({ɔ, e}→ə/_#), and the transition from the four-

vowel system to the three-vowel system was finally completed. Thus, we can see the two-way contrast between the high vowel and the low vowel in syllables with ending has been there in the language for a long time and has not been affected by the merging of the *mièh-hsiéh* and the *sō-p'ō* rhymes.

5. 3. The following chart of syllable finals is given here as a summing up of our discussion on the total final system. Labels for rhymes from the "Thirteen Tracks" are attached at the bottom for easv reference.

E / V / M	ɸ				y		w		n		ŋ	
	ɨ		ə	a	ɨ	a	ɨ	a	ɨ	a	ɨ	a
ɸ		支	歌	大	黑	來	侯	豪	跟	山	生	唐
y		衣	切	加		厓	油	遙	因	言	京	江
w	姑		說	花	灰	懷			文	晚	東	王
yw		居	岳						君	全		
十三轍	姑蘇	一七	梭坡 也斜	發花	灰堆	懷來	油求	遙條	人辰	言前	東中	江陽

The reason why there are two rhyme labels under rhyme base /əɸ/ has been explained in 5. 2b, but the separation of *kū-sū* (姑蘇) from the *yì-ch'ī* (一七) under the rhyme base /ɨɸ/ is obviously a violation of the difinition for rhyming. To interpret *kū-sū* as a rhyme with a different vowel is clearly out of question from the phonemic point of view. What, then, is the cause for its separation from the *yì-ch'ī*? This is indeed a problem for which no completely satisfactory answer can be found. One can only speculate that, to the native speakers of this dialect, the phonetic quality of the final /wɨɸ/ (*kū-sū*) must have been somewhat noticeably different from the three finals in the *yì-ch'ī* rhyme, namely, /ɸɨɸ, yɨɸ, ywɨɸ/, which shared some common acoustic effect. This speculation is strongly supported by the fact that, in the morphophonemic process of r-suffixation, words of the *kū-sū* rhyme stand out prominently as a unique group, while all three types of words in the *yì-ch'ī* rhyme follow the same change, and, as a result, join those of the *huī-tuī* (灰堆) and the *j.n-ch'én* (人辰) rhymes (see 6. 3).

6. R-SUFFIXATION

Mandarin Chinese, particularly MP, is unique when compared with other forms of Chinese in that it possesses a new syllable ending /r/ which did not exist in Ancient Chinese and is most definitely a different thing from the Archaic Chinese ending /r/, if it did exist there (see Fang-kuei Li 1971: 27). Where did this ending come from? My own research shows that at the time of *Chūng-yuán Yīn-yùn* (中原音韵, 1342), words like 兒耳二 had the reading /rɨ/ (plus tone), but by Hsú hsiào's (徐孝) time (1606), a metathetical change must have rendered this syllable into /ɨr/ (Hsueh 1975: 91 and 1975b), and this unique ending thereby came into existence. But since this was the only *basic* syllable that had this unique ending, the few words of this reading never formed a separate rhyme, though theoretically they should (they were still put together with words like (支思 etc.). When the word 兒 that had this reading became a diminutive noun suffix,[4] it lost its vowel through phonetical fusion. Consequently, a large number of *derived* syllables with /r/ as ending appeared. The process through which these r-suffixed syllables are derived will be fully described but before we do that, we have to decide how the syllable represented by words like 兒耳二 should be phonemically represented in MP.

6.1. Practically all previous studies transcribe words like 兒耳二 as /er/ (or /ər/), i.e., having the mid vowel. This is explanatorily inappropriate and descriptively inadequate. As explained above, these words had the reading /ɨr/ as late as the beginning of the Ch'ing dynasty when the former four-vowel system was not yet replaced by the three-vowel system of MP. There is no reason to say the change of the vowel system in this case has affected this syllable (see 5.2 and Hsueh 1976). More importantly, when we take the r-suffixed syllables into consideration, it becomes necessary to interpret this particular syllable as one with the high vowel /ɨ/. Words like 蛾鵝 etc. are repre-

4. This is only a convenient oversimplification. Actually, suffix "r" came etymologically from several different sources, such as 裏 (那儿), 日 (今儿), and 兒 (see Chao 1968:46, Ch'en 1965, Hockett 1950, Shang 1966). Moreover, it may also occur after verbs (e.g., 玩儿) and adverbs (e.g., 慢慢儿地).

sented by the syllable /ə/, that is, the mid vowel alone. When they are suffixed with /r/, naturally they should be transcribed /ər/. Since this r-suffixed syllable is in clear contrast with the syllable representing 兒耳二 etc., to transcribe the latter also as /ər/ (or /er/) should be out of question, but both Hartman and Hockett transcribe 兒 as /er/. Since Hartman proposed that 歌儿 be transcribed as /keer/ (i. e., with a *long* mid vowel; hence, 蛾儿 as /eer/), he succeeded in differentiating the two syllables in question by this strange and arbitrary, means, though he did not seem to be aware of the crucial problem we are now discussing. On the other hand, since Hockett proposed a two-vowel system by eliminating the high vowel, and he correctly insisted that 歌儿 must be transcribed as /ker/ (hence, 蛾儿 as /er/), he simply had no means to mark the phonemic contrast between 兒 and 蛾儿 (he transcribed 日 as /r/). In other words, he committed the mistake of "underdifferentiation" which is unacceptable in phonemicization. This is why I say his system is not even descriptively adequate, though his interpretation of the contrast between 歌儿 (/ker/) and 根儿 (/keir/) is much more credible than Hartman's (see 6. 3). I do not know if Tōdō Akiyasu was aware of this problem or not, when he interpreted 兒 as /rr/, that is, "a syllabic r" (he interpreted 日 as /rrɪ/). He succeeded in marking the contrast by this ad hoc means which, perhaps, Hockett could have used, too; but we cannot accept this solution, both because it is ad hoc, and because it violates the definition of syllable which he observed everywhere else.

6. 2. The occurrence of the suffix "r" in MP is basically a lexical matter, that is, it does not occur after a clearly definable class of forms, but occurs rather by choice or convention.[5] Wherever it occurs, however, it merges with its preceding syllable, apparently by following some morphophonemic rules. Exactly what are these rules, if they do exist? For decades, different scholars have responded with different and often contradicting answers. Those who do not accept the three-vowel system for MP often argue that, for r-suffixed syllables,

5. The conventional nature of this suffix can be seen from the fact that it may drastically change the meaning of the term to which it is attached; for example, 火星 "Mars" vs. 火星儿 "sparks", 白麪 "white flour" vs. 白麪儿 "heroin". For more examples, see Liu 1957:(3)19.

there should be at least two or more mid vowels (e. g., Sung 1965 and Wang 1963). Among those who do accept the three-vowel system, some propose rather fantastic solutions. For example, Hartman allows the contrast "long vs. short" for MP, but restricts it to the mid vowel alone,[6] and Hashimoto recommends three rules which will "render it unnecessary to mark the contrast in question on the phonemic level" (Hashimoto 1970: 215). It seems to me that the controversy arises from a misunderstanding of the nature of the problem. The fact is, for this matter, native speakers of MP split into different groups, each following a different set of rules. Dr. Y. R. Chao seems to be the first one to point out that there is a difference in this matter between the "old generation" and the "new generation" (Chao 1968: 51). My own investigation indicates that among the speakers of both the new and the old generations, there are different versions. The situation is very much comparable to that when entering tone words changed in different ways in different dialects. (Hsueh 1975: 91-133, and 1978). In cases like these, precise specification will be possible only when we deal with the different versions separately. When we adopt this approach, and use the system of finals given above (see 5. 3) as the basis for specification, we shall find the morphophonemic process for this matter is almost unbelievably simple.

6. 3. The so-called old generation seems to consist of two groups. In the speech of the first and possibly older group to which Hockett's informant obviously belongs (see also Shih 1957: 11), we notice the following phenomena:

a) 瓜儿 kwa +r≠ 官儿 kwan +r= 乖儿 kway+r.
沙儿 sra +r≠ 山儿 sran +r= 篩儿 sray +r.
b) 蝕儿 sr̩ +r= 神儿 sr̩n +r≠ 蛇儿 srə +r.
枝儿 cr̩ +r= 針儿 cr̩n +r, (rhyming with 黑儿 hɨy+r.)
根儿 kɨn +r≠ 歌儿 kə +r.

6. The derivational nature of r-suffixed syllables was obviously overlooked by scholars like Hartman and Hockett who treated them just as other types of syllables. So, strictly speaking, as far as these scholars are concerned, no morphophonemic process is involved here, i. e., no r-suffixation. Nevertheless, in his "Peiping Morphophonemics" (1950), Hockett did include a brief discussion on alternations caused by "the suffixes /r/", which is basically an enumeration.

c) 鷄儿 kyɨ +r= 今儿 kyɨn +r.

藝儿 yɨ +r= 印儿 yɨn +r≠ 葉儿 yə +r.

d) 屋儿 wɨ +r≠ 溫儿 wɨn +r≠ 窩儿 wɜ +r.

鼓儿 kwɨ +r≠ 滾儿 kwɨn +r= 鬼儿 kwɨy +r≠ 菓儿 kwə +r.

e) 玉儿 ywɨ +r= 運儿 ywɨn +r≠ 月儿 ywə +r.

渠儿 khywɨ+r= 羣儿 khywɨn+r≠ 瘸儿 khywə+r.

Hockett interprets the contrasts like the above as a result of the presence or the absence of syllable ending /y/ before suffix /r/, and the lack of contrast as a result of ending /n/ changing to /y/ before /r/. I think he is right, though we have to add that, in some cases, /y/ is added before /r/ is attached (Rule A below). On the basis of our proposal that, in syllables with ending, the vocalic contrast 5.2), we can now describe the morphophonemic changes that are responsible for the above phenomena by two simple rules as follows. The note to the first rule means that this rule does not apply to the pure labialized final /wɨϕ/, i.e., words of the *Kū-sū* rhyme.

A. $\phi \longrightarrow$ y/(M)ɨ_r

M≠w

B. n $\longrightarrow$ y/_r

A chart of the r-suffixed finals in this version is given below. It can be seen that words of the *Kū-sū* rhyme stand prominently apart from those of the *yì-ch'ī* rhyme which has merged with the *huī-tuī* and the *jén-ch'én* rhymes.

E / V / M	-r			-yr		-wr		-ŋr	
	ɨ	e	a	ɨ	a	ɨ	a	ɨ	a
ϕ 開	(兒)	蛾儿	沙儿	枝儿	蓋儿	頭儿	刀儿	燈儿	糖儿
y 齊		姐儿	牙儿	今儿	烟儿	牛儿	條儿	瓶儿	牆儿
w 合	屋儿	菓儿	瓜儿	鬼儿	官儿			蟲儿	妝儿
yw 撮		月儿		玉儿	院儿			熊儿	

6.4. The second version of r-suffixed syllables in the speech of the so-called "old generation" is reflected by a further erosion of contrast among syllables with the low vowel /a/. For example, words in each of the two

groups under (a) in the last section have become homophones, so have 瓦儿 (wa+r) and 碗儿 (wan+r). In other aspects, it is exactly the same as the first version. (Obviously, Hartman's informant speaks this form of Pekingese.) We, therefore, can interpret this phenomenon as the result of a further development of the version described above by adding one simple rule to the two above.

C. $y \longrightarrow \phi / a\_r$

This version is supported by Wang Fu-shih's report (Wang 1963). However, Wang asserted that it is 啊儿, 呀儿, and 蛙儿 that joined 安儿, 烟儿, and 彎儿 respectively (Wang 1963: 117). If he is right, the rule will have to be rewritten as $\phi \longrightarrow y / a\_r$. I have some reservation about his interpretation, though the lack of contrast in these cases as he reported is beyond any doubt. Moreover, Wang says his report is based on the speech of the old Peking residents (老北京人), particularly those of the inner city (內城話), though since the "liberation", because of the great inflow of population from other areas, the first version that maintains the contrast between 啊儿 and 安儿 etc. has become more popular. There is no need to draw a chart for the r-suffixed syllables in this version. We may have one by simply removing the /-ayr/ column from the above chart (and filling the slot for /ywar/ with 院儿).

6.5. There also seem to be two groups in the "new generation". One of these versions can be inferred from Liu Tse-hsien's report (Liu 1957: 21-22). In his version of Pekingese, though palatalized pairs of the first and the second tones like the following are still in contrast, their counterparts in the third and the fourth tones have become homophones.[7]

1st tone: 衣儿 yi +r= 蔭儿 yin +r≠ 掖儿 yə+r.
蛆儿 khywi+r≠ 缺儿 khywə+r.

7. Liu's report is in agreement with Chao's remark on palatalized syllables with the third or the fourth tone (Chao 1968:51). However, Liu still differentiates the non-palatalized pair of the third tone 鬼儿 vs. 莫儿 which, according to Chao, have become homophones for the "new generation". On the other hand, Liu's transcription shows that, when 幾儿 [gi+r] and 姐儿 [gie+r] became homophones, it is the former that changed to the latter ([gier]), but Chao's transcription shows that it is the other way around (both are /jieel/, instead of /jiee'l/). Moreover, after saying that 小鷄儿 sheau-jiel ≠小街儿 sheau-jie'l. but 幾儿 jieel and 姐儿 jieel

2nd tone:	笛儿 tyɨ	+r≠	碟儿 tyə	+r.			
	橘儿 kywɨ	+r≠	橛儿 kywə	+r.			
3rd tone:	幾儿 kyɨ	+r=	姐儿 kyɑ	+r.			
	底儿 tyɨ	+r=	蝶儿 tyə	+r.			
4th tone:	藝儿 yɨ	+r=	印儿 yɨn	+r=	葉儿 yə	+r.	
	玉儿 ywɨ	+r=	月儿 ywə	+r.			

Strict formulation for this version is rather difficult, because it involves tone which has not been included in our discussion. However, we can add verbally "For syllables of the third and the fourth tones, apply the following rule".

D. $\text{ɨy} \longrightarrow \text{ə/y(w)\_\_r}$

Since Liu's version is identical with Wang's (see 6.4) in every other aspect (including 根儿≠歌儿), we can now explain his by adding the above rule to the three needed for Wang's. In this way, we are really claiming that Wang's version represents the first step of moving away from the oldest version, while Liu's version represents the second step.

6.6. The fourth version implied by the solution proposed by Tōdō Akiyasu (1958: 16-18) is drastically different from the three already discussed. It seems to indicate that a restructuring of the MP sound system has taken place. As we do, Tōdō recognizes three vowel phonemes /ɪ, ə, a/, but unlike us, he interprets the vocalic contrast in syllables with ending as one between the mid and the low vowels. On this basis, while admitting that phonemic symbolization for the r-suffixed syllables is very difficult, he proposes an incredibly simple (I'm temted to say "simplistic") solution, namely, "When suffix 'r' is added to the basic syllables, /n/ and /y/ as syllable ending are dropped." (This is my summing up of his solution. Tōdō actually resorts to enumeration.) This implies

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are homophones, he adds: "It should be noted in passing that the distinction as represented by the 根儿 : 歌儿 gel:ge'l contrast and the 鷄儿 : 街儿 jiel:jie'l contrast is disappearing fast." Here Dr. Chao seems to be predicting that rhyme base /ɨyr/ (小人儿辰儿 : 根儿, 鷄儿, 鬼儿, 笛儿) and rhyme base /ər/ (小坡儿斜儿 : 歌儿, 街儿, 菓儿, 碟儿) will coalesce in the future. It must be pointed out that both the two contrasts he mentioned exist in Liu's speech as he emphatically stated, and in Tōdō's version (see 6.6), only the contrast 根儿 : 歌儿 disappeared, while 鷄儿 is still in contrast with 街儿 (even with 今儿).

that, in the Pekingese he knows, we should see the following phenomena:

a) 瓜儿 kwa+r= 官儿 kwan+r= 乖儿 kway+r.

b) 蝕儿 sɪ +r≠ 神儿 sən +r= 蛇儿 sə +r;
根儿 kən +r= 歌儿 kə +r.

c) 鷄儿 kyɪ +r≠ 今儿 kyən +r, rhyming with 歌儿.

d) 屋儿 wɪ +r≠ 溫儿 wən +r= 窩儿 wə +r.

e) 玉儿 ywɪ +r≠ 運儿 ywən+r= 月儿 ywə +r.

Rhyming of r-suffixed syllables in this version would be like the following chart.

E / V / M	-r			wr		-ŋr	
	ɪ	ə	a	ə	a	ə	a
-φ-	枝儿	針儿	孩儿	狗儿	套儿	繩儿	張儿
-j-	鷄儿	今儿	牙儿	油儿	鳥儿	釘儿	羊儿
-w-	屋儿	鍋儿	塊儿			洞儿	胖儿
-jw-	魚儿	雲儿	圓儿			熊儿	

Viewed on the basis of the sound system we have proposed for the basic syllables in MP. Tōdō's solution implies two fundamental changes which can be represented by the following rules:

1) $\dot{\imath} \longrightarrow ə / \_\_ E$
$E \neq r$

2) $\left\{ \begin{matrix} y \\ n \end{matrix} \right\} \longrightarrow \phi / \_\_ r$

These two rules are quite different from the four rules discussed above (6. 3-6. 5). The first may be regarded as a symbolization of the final victory of the internal structural pressure over the external historical holding back (see 5. 2). The second seems to be a symbolization of a subconscious effort in trying to conform to the basic phonemic patterns of Chinese syllables which allow only one single ending. To be frank, I have some misgivings about Tōdō's proposal, though I have no intention to dispute the truthfulness of his report by suggesting that be tailored the language to suit his theory. So I assume his report is probably true, and speculate that the dialectal version he reported might possibly have

pointed out the direction to which the MP sound system in general is moving.

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國音韵母的音位結構及其兒化

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中外學者論述國語音系的著作，數量上相當衆多，但直到現在還有一些重要的問題沒有得到合理的與適當的解決。本文作者認爲，這是由於國音的基本性質還沒有得到澈底的與充分的分析。本文的目的就是要從純學理的觀點上，跟對這個題目有理論性的興趣的學者，詳細討論國音韵母的音位結構。作者的根本看法是：眞正的音位分析必須能够正確地反映（也就是合理的解釋）說某種語言的人羣對語音的共同感受，特別是押韻的現象。作者認爲，這個看法跟中國傳統音韵學的基本精神是完全符合的。根據這個看法，本文重新肯定了國音中只有高中低三個元音的說法，但跟前人不同的是：本文作者發現，在有韵尾的韵母裡，元音的對比是高元音對低元音，而不是中元音對低元音。在這個基礎上，漫無頭緒的兒化現象終於得到了合理而簡明的解說。