

上古漢語之韻部 —— 一項數理統計研究

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摘要：自意識到語言之歷時變化以來，上古漢語之音韻系統頓成疑團，蓋因缺乏傳世韻書，且當時亦無萬國音標及錄音器材可用；更甚者，傳統用以記錄漢語之文字系統，以表義為主，表音為輔，更加劇了研究之困難，故上古漢語音韻之研究遠比中古漢語來得要慢，更無論其他倚賴音韻學之學科，如形態學矣。

系統地研究上古音韻之開山鼻祖——清儒段玉裁曾運用算術統計分析《詩經》之材料，把古韻歸納為六類十七部；後高本漢氏更引進萬國音標以供擬測音值之用。不過，無論如何，利用古代韻文去劃分韻部依然是一項重要工作（朱曉農 2006）。

就古音分部而論，羅常培及周祖謨等曾運用算術統計來確立古韻分合；可是使用簡單之比例統計及固定之閾值削弱了研究之客觀性。因此，陸志韋就利用概率統計來解決此問題，並以此探求上古音之聲母系統。最近，朱曉農（1989）更運用數理統計開發出一方案以研究北宋之韻部。

朱曉農運用了“離合指數”，即兩韻實際相押比值與理論上相押概率之比，以決定分轍之概率，並設立零假設及借助 T 分佈假設檢驗以確定兩韻是否已合併。由是，運用數理統計於古韻文上，那研究材料不單單是旁證，更可用作本證了。由於有了此方案，利用韻文作為材料之價值遂大大提高，而且人為的隨機錯誤之影響更可大大地減低。

當代上古漢語構擬之結果普遍地以諧聲偏旁為基礎、利用中古音之聲韻分佈、以及漢藏對音。近來，白一平（Baxter, 1992）亦提出了一個統計方法以研究上古漢語之韻部，可是於樣本數量太小之情況下，二項分佈未必適用。

因此，此研究運用朱曉農開發之方案以全面系統地探討古韻分部，而研究材料——《詩經》亦可充份且嚴謹地利用。

关键词：上古漢語、漢語音韻學、押韻、數理統計研究、《詩經》

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On the Rhyming of Old Chinese: A Statistical Study

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Abstract: The phonological system of Old Chinese has long been a mystery since the realisation of language evolution. The reason behind is not only the lack of inherited rhyming dictionaries, phonetic alphabets and audio recording devices in that era, but more importantly, the application of ideographic writing system, which provides a little phonetic information to each symbol. Consequently, the progress of study is far less productive than that of middle Chinese, let alone the other fields of Old Chinese, such as morphology.

The pioneer who conducted systematic investigation in the phonological system of Old Chinese is Dun Yucai in the *Qing* dynasty. Simple descriptive statistics was applied to the rhymes in the “Classic of Poetry” for the categorisation of the ancient rhyming groups. The introduction of phonetic alphabets by Bernhard Karlgren provided means of estimating the phonetic values of the rhymes. Nevertheless, the categorisation of rhyming groups by verse is still an important step (Zhu 2006).

On the study of rhyming, Luo Ch’ang-Pei, Zhou Zumo, *et cetera* applied descriptive statistics to test the merging of rhymes. However, the simple comparison of a fixed threshold to the ratio of rhyming distinctions weakens the objectiveness of the study. After that, Lu Zhiwei first applied inferential statistics to study the initials in Old Chinese by phonograms. Recently, Zhu (1989) made use inferential statistics and developed a model to study the rhyming in North *Song* dynasty.

In Zhu’s study, “discrete index”, which is the ratio between the ratio of the rhyming of two suspected separated/mixed rhymes in the same rhyming group and that expected by chance, is applied to determine the probability of mixing rhymes. After that, null hypothesis is made and the “T-test”, which is a common statistical

test, is used to verify the result. Similarly, the mixing of the rhyming groups can also be determined in a similar way. By applying inferential statistics on the verses, not only can the corpus be used as circumstantial evidence, but concrete evidence. In this way, the valuable historical documents can be fully utilised. In addition, the influence of random errors due to the writers and compilers can also be greatly reduced in the analysis.

Present results on the reconstruction of Old Chinese are largely based on the phonetic components of the phonograms, Sino-Tibetan comparison and the distribution of elements in Middle Chinese. Recently, Baxter (1992) has also outlined a statistical model to study the rhyming of Old Chinese. However, with small amount of samples, binomial distribution may not be the best one to use.

In this research, the model developed by Zhu was applied in the investigation of the categorisation of the Old Chinese rhyming so that the corpus — *Classic of Poetry* can be strictly and thoroughly utilised.

Keywords: Old Chinese, Chinese Historical Phonology, Rhyming, Statistical Study, *Classic of Poetry*

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